



Backwoods Home

SPECIAL GARDENING EDITION

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My view

The tax problem

From my viewpoint, taxes are the major problem in this country, from how high they are, to how they are collected, to how they are spent. If we could solve America's tax problem I think most of our other troubles would fade away.

Cut taxes by cutting waste

We obviously need to cut waste. No sense collecting taxes we don't need. Our most recent federal government shutdown revealed that at least 260,000 furloughed federal workers are nonessential. Not only was I not inconvenienced by the government shutdown, but I actually felt a sense of relief that many of the bureaucrats were safely locked out of their offices. I even took a survey of people I know, and I could find no one who was inconvenienced by the shutdown. In fact, I did not find one person who thought it important to reopen the government.

It seems clear then that most of those federal employees should be permanently furloughed so they can go out and get productive jobs. That would certainly save a lot of tax money.

Don't conceal taxes

The new year just happened to begin during the government shutdown, and we woke New Year's Day to read in our newspapers that the 10% tax the federal government puts on airline tickets had expired and could not be renewed until the budget impasse was solved. That reminded everyone of the hundreds of other hidden taxes the government collects from us--on everything from gasoline and auto tire taxes to cosmetic and alcohol taxes.

A major portion of government taxes are hidden. Virtually every product you buy has a hidden tax on it because corporations, acting as unwilling government tax collectors, pass on their high taxes to us in the form of higher prices.

Personally dole out taxes to recipients

But the most significant way to solve the tax problem lies in the way taxes are doled out to the recipients. Rather than continuing to use the impersonal approach of having government act as the intermediary between the taxed and those who get to spend the tax, we need to substitute a personal approach. Starting with our paychecks, tax payers should personally hand over their taxes to the beneficiaries so we get a firsthand understanding of what is really going on.

Picture this scenario: You get your full paycheck from your employer in cash take some of the money and put it in

your pocket so you can buy things for your family, then take the remaining--those federal and state taxes that used to go the government--and personally hand it out to tax recipients. Maybe there'd be a line of people with their hand out going by you.

First would be a thin welfare mother carrying her baby with two more young children in tow. "Here you are," you'd say to her as you handed over a wad of bills. "Go have another kid; there's plenty more where this came from."

Next would come along a well-fed corporate farmer in his \$800 suit and 10-gallon hat. You'd hand him an even bigger wad of bills, thanking him profusely for taking part in America's agricultural subsidy program in which big farmers are paid not to grow too much of one crop.

Then maybe a tall and erect member of the National Education Association (NEA) would come by and you'd hand her some money so she could use it to lobby Congress to stop the home school movement in America, or use it to buy television time to stop a school voucher initiative in some state.

And don't forget the distinguished member of the American Association of Retired Persons (AARP). He needs his tax dollars so he too can lobby Congress--to make sure Congress doesn't cut Medicare or social security payments to AARP members.

And what about those social security taxes? You'll want to put some of your money into that social security trust fund that's supposed to be there for your own retirement. But that's when you'll find out the trust fund doesn't even exist. It's all just a big flim flam game, a con that every senator and congressman-Republican or Democrat-knows about. In fact, congressmen don't even participate in it; they have a real retirement plan.

Then you'll go through the rest of the line, handing out a few bucks here, a few there to all the rest of the drug addicts, the political action committees, and other worthy people getting slopped at the tax trough.

Once we went through this personal process of doling out our money in the form of taxes to the various people government has deemed worthy to get them, some of us might decide we didn't want to pay some of our taxes. That's when we'd get reminded of another cruel aspect of the tax problem: taxes are not voluntary.

In fact, should we protest paying some of these taxes and decide to fight then we'd find ourselves not in a court of law but in a tax court run by the Internal Revenue Service. Virtually no one wins in the IRS court. Because you see, in the end the government holds a gun to our head when it comes to paying taxes. We really have no choice.

Does all this make you mad? Good!

It's cheap and easy to multiply plants by using these propagation techniques

By Connie Glasheen

Are you looking for cheap, easy ways to increase the number of plants in your garden? I am, and I've found some plant propagation techniques that really work: *cuttings*, *layering*, and *division*. What's really nice about these three methods is that the baby plants will be identical to the parent plant. I only need to get one plant, and then I can produce enough starter plants for my gardens, plus have leftovers to sell or give away.

Cuttings

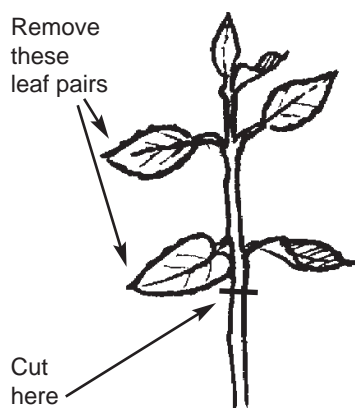
Let's start out with cuttings, the method I like to use the most. Usually *stem cuttings* are the way to go, but you can also try *root cuttings* (very easy with fleshy-rooted perennials like day lilies). There are three types of stem cuttings:

- Softwood (I use this most often)
- Semi-ripe
- Hardwood

Softwood cuttings are usually done in spring and early summer, before the plant gets too woody and hard. You're looking for soft, succulent new growth, not a plant that is droopy and limp from lack of water.

Choose a stem or branch that is about two to three inches long, and use a knife or razor blade to sever it from the parent plant. Cut below a leaf node. Don't use scissors, as the inside tissue will get bruised and probably rot.

Most cuttings need to be planted right away so they don't lose much moisture. (There are always exceptions to every rule. In this case, geraniums and cacti and succulents *like* to



Making a softwood cutting

dry a little and scab over before planting.) If you aren't able to plant immediately, just put the cutting in a plastic bag and leave in a cool, shady spot up to a couple of days.

When potting up the cuttings, strip off any leaves that would be below the soil when planted. That way they won't rot and cause problems. Leave the tip intact.

Some people swear by using *rooting hormone* powder and others don't. This powder contains synthetic versions of natural plant hormones called *auxins* which stimulate root formation. One envelope costs about a dollar and will last for years. Just dip the cut end into the powder, shake off the excess, and pot up the cutting.

Another way to encourage root formation is to water with *willow water*. Just soak willow branches in water for a couple of days, and the water will contain the auxins also. I've used pussywillow and weeping willow, so this method doesn't seem to need a particular variety.

The soil you use for potting up your cuttings can be well-rotted compost,

sand potting soil (dries out quickly), or plain garden soil. I use a mixture of compost and garden soil. No matter what you use, one thing must be constant: it needs to remain moist.

I usually pot up my cuttings in four-inch plastic pots, one cutting per pot. When I use seed-starting flats, I can fit about 30 cuttings in a flat. I make a hole in the soil with a pencil, stick the cutting in, then firm the soil around the cutting and water it. Keeping the cutting in a warm place will hasten the rooting process. When I see new leaves forming and rapid growth, I know it has worked.

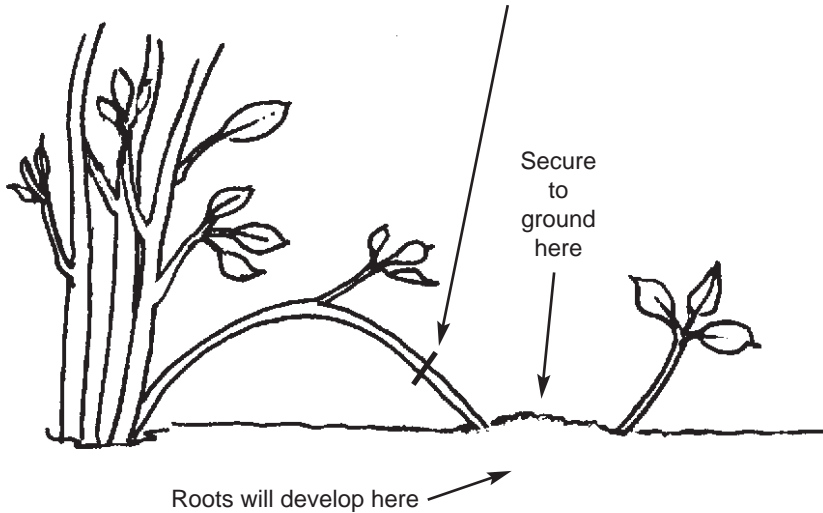
Semi-ripe cuttings are usually taken in mid-summer to mid-fall. The stem tops are soft and succulent, and the bottoms are starting to become woody. Pinch out any flower buds, because you want the plant to concentrate on making roots, not flowers.

Sand is usually the best type of medium to root semi-ripe cuttings. On average, these cuttings take from 5 to 25 weeks to root, so keep checking to make sure they are moist (but not wet). This works for conifers, heaths, heathers, laurels, and roses. Often these are rooted in cold frames, and you will see lots of new growth in spring, when you can move them to their permanent spot.

Hardwood cuttings are cuttings from fully ripened wood. Look for a healthy, ripe one-year-old stem (a stem that grew that current year) with bark that doesn't give when you pinch it. It should be about eight to ten inches long. (This is only a guide; it works with shorter or longer pieces.)

Make a straight cut below a leaf node or bud. Now on the top make a slanted cut. This way you know which

Once roots have formed, cut with pruners here



Layering

is the top and bottom. Dip in rooting hormone and plant in a well-drained site, preferably facing south so it will warm up quickly. Plant and firm in the soil. Since these cuttings take months to root, we're lucky that they don't need any winter protection. Stem cuttings can be taken from thick-stemmed plants (usually houseplants). When you cut the stem, make sure you have a couple of nodes. You can plant it vertically (making sure it's right-side-up) or horizontally (half-buried).

When these cuttings root, you'll see new leaves emerging. Allow time for the new plant to establish healthy roots, then re-pot.

Root cuttings are used with fleshy-rooted plants like day lilies, iris, and dahlias. Avoid grafted or budded trees or shrubs, as you'll get rootstock, not the plant you see on top. To do this, pick a time when the plant is dormant, so it won't suffer from the disturbance. Lift small plants from the soil and brush off enough of the soil so you can see what you're doing. On larger trees and shrubs, just scrape away enough of the soil to expose a couple of roots you can use. Choose pencil-thick roots. Two or three roots

should give you plenty of material to work with and will not cause too much distress to the plant. Make clean cuts and don't let these dry out. Bag the cuttings if necessary and replant the parent plant as soon as possible.

Back to the cuttings: Trim off thin side roots and cut into sections two to three inches long, with the bottom straight and the top slanted so you know which end goes up and which goes down. Pot into planting medium, firm soil, then water. There's no need for rooting hormone, and if you're not sure which is the top, then plant horizontally. Cover with a thin layer of

soil. You'll soon see buds forming on the surface, but be patient and let them grow a little bit before transplanting.

Division

Some plants can be divided into several pieces, each growing into an entirely new plant. This process is easy, and one plant can yield six or more plants. Dividing is best done in early spring when the plants are growing rapidly. They re-establish themselves quickly. Carefully dig up the plant with a garden fork or shovel. Remove some of the soil with your fingers, trying not to damage small, sensitive roots. Some plants can be separated with your fingers, while others will need to be cut apart with a knife. Using two garden forks back to back, try prying the clump apart. Divide again if needed. Day lilies can usually be divided with the garden forks, but some of the ornamental grasses will need to be cut. Make sure each section has several strong shoots and plenty of roots.

The centers of clumps sometimes become very woody (bearded iris comes to mind). Just discard any woody centers and replant the vigorous outside sections.

Layering

Simple layering is taking a stem still attached to the parent plant, weighing



Sever here after roots have formed.

Air layering

or pinning it down to the ground, and covering it with soil so that new roots form. Then, once roots have formed, you sever the stem from the parent plant.

Raspberries, currants, and blackberries do this easily, and it's most successful during the active growing period.

Cultivate the soil around the mother plant so it's nice and crumbly. Choose the stem to be layered and remove any leaves that would be underground. It should be a young, supple stem that won't snap when bent over. To encourage rooting, wound the stem slightly by scratching off a little of the bark. Use a coat hanger wire bent into a U or a large stone to peg the stem into place, then cover it with soil. Roots will form during the following season, and then you can separate it from the parent.

Tip layering mimics what blackberries do in the wild. Take a supple shoot with a healthy, strong growing point, bend it to the ground, and peg it down or dig it into the soil. A new tip will quickly form. Allow good root formation to occur before severing.

Air layering

Air layering is used on plants that don't have supple stems. Rigid stems would snap if the other methods were used, but air layering will work and provide you with new plants. Usually you see this done with large houseplants that have outgrown the space they're in.

Choose the place on the stem where you intend to produce new roots to create a new plant. The stem should be sturdy but young. Make a diagonal cut, taking care not to go all the way through. Insert rooting hormone into the cut, then insert a small piece of wood (a toothpick works well) to keep it open a bit.

Wrap damp sphagnum moss around the cut, then put plastic wrap around it. This will keep it nice and moist, and will create a greenhouse effect for

warmth. After roots have formed, sever beneath the cluster of roots and pot up your new plant.

These are some of the ways you can easily propagate plants and increase your plantings, both indoors and out. Don't give up if one way doesn't work. Keep experimenting until you find the ways that work best for you and your plants. Δ

Yard Work

I planted
Two common purple lilacs
And two rosebushes,
A Mr. Lincoln and a Peace.
I planted
Catnip for Christopher Marlowe.
I planted larkspur
For Pat and
Spring Beauty for me and
Some old stalks of
Chrysanthemum that may
Or may not survive.
I put in some Shasta daisies.
None of them look well.

I want to plant
Old-fashioned roses—
I want a thicket
By my front door, a hundred
Feet tall and full of blackberries.

I want blue spruce and
Daffodils and
Barking dogs and roots
That go down so deep—

I want my hands in warm soft loam,
My back to the sun, and mostly
To be left alone.

**Olive L. Sullivan
Pittsburg, KS**

A BHM Writer's Profile: M. C. Wright



Born and educated in a small town in southern Mississippi, Margaret Clark (M.C.) Wright still has the accent to prove it. She was raised by her grandmother and a loving nanny while her mom worked outside the home. Wright married her high school sweetheart; they have been together 32 years. She is mother to four children and "Mamaw" to seven grandchildren. Her youngest child, Benjamin, is still at home.

Wright and her family have travelled extensively, following the electrical construction trade. They landed in Idaho 20 years ago and are still there. Wright has worked with several rural ambulance services as an emergency medical technician.

Basically a mother earth type, Wright homeschools her children, cooks from scratch, sews, quilts, gardens, and takes care of the animals. Her favorite attire is a denim skirt, sweatshirt, and Birkenstocks with socks, which she describes as a real fashion statement. She began writing after taking some journalism classes—a hobby turned serious. She says, "I love the idea of other people being interested in my lifestyle, and hope I can inspire them to follow their dreams."

Soil pH is the secret of a good garden

By Marjorie Burris

A garden with the correct soil pH can produce a beautiful, bountiful harvest, but a garden with the wrong soil pH barely produces stunted, runty plants that scarcely keep alive, let alone bear fruit. It's easy to determine your soil's pH, and the more you find out about your garden, the better you will be able to garden. Playing by ear may be great for musicians, but when it comes to gardening, guesswork doesn't pay.



What is pH?

Literally, pH is shorthand for the French words *pouvoir hydrogène*, which mean the "power of hydrogen." The pH value tells you the concentration of hydrogen ions in a substance. The more free hydrogen ions there are in a substance, the more *acid* it is.

Hydrogen ions are counteracted by hydroxide ions which are symbolized by the chemical shorthand "OH." The more free hydroxide ions there are in a substance, the more *alkaline* it is.

In pure water, there are enough hydrogen ions and hydroxide ions to almost neutralize one another. The measurement of hydrogen ions in a liter of pure water is 1×10^{-7} . Written out, that is 0.0000001. This means that each liter of pure water has one ten millionth of a gram of H^+ and the equivalent amount of OH ions in it. This is just too awkward to write out all the time, and since the logarithm of ten millionth is 7, we say the pH of water is 7. Thus chemists have developed a scale of 0 to 14, with 7 being *neutral*. Values from 0 to 7 indicate acidity and values from 7 to 14 indicate alkalinity. Most common vegeta-

bles grow best on a soil that has a pH of 6.5 to 7, which is only slightly acid to neutral.

How to test for pH

Hydrogen ions make things taste *sour*; vinegar is a good example. In the old days, a farmer might taste his soil, and if it tasted sour, he knew it was acid. In contrast, hydroxide ions make things taste *brackish* or *bitter*. Baking soda is a good example, and if the soil tasted bitter, the farmer knew his soil was alkaline. This is a rough test, and although it is not too reliable, it is better than no test.

A slightly better test for pH is the *litmus paper* test. Litmus paper is paper which has been impregnated by a solution made from ground-up lichens. It is purplish in color and is neutral in itself. A few drops of acid solution on the paper will make it turn red. An alkaline solution will make it turn blue. (There is also red and blue litmus paper, but this is simply the neutral purple paper which has been treated by a few drops of acid to make it red or a few drops of alkali to make it blue.)

To use litmus paper in soil, simply press the paper against the damp soil and watch for the color change. This test indicates whether soil is acid or alkaline, but not *how* acid or alkaline. Still, it is more accurate than the subjective taste test. Litmus paper can be purchased at most good drug stores and is not expensive.

Most good full-line nurseries and seed companies sell *pH meters* and *soil test kits* at reasonable prices. Considering the value of knowing how to amend your garden soil correctly, they are well worth the cost. I've seen two or three different makes of meters, but they all work on the same principle. Each uses a probe which, when inserted into the soil, triggers a needle to record the pH. They do not use batteries.

The soil test kits come with test tubes and tablets and work very much like swimming pool test kits. They give an indication of the level of *usable* nitrogen, phosphorus, and potassium in the soil, as well as the pH. Most kits contain enough tablets for several tests, some of them up to 40 tests.

My 1995 seed catalogs from Burpee's and Gurney's both list pH meters and soil test kits. If you want more information, here's how to contact them:

Burpee Seed Company
300 Park Ave.
Warminster, PA 18991-0001
Phone: 1-800-888-1447
Fax: 1-800-487-5530

Gurney's Seed Co.
110 Capitol St.
Yankton, SD 57079
Phone: 1-605-665-1930
Fax: 1-605-665-9718.

As I write this I don't have my latest Vesey's seed catalog (it's a company

specializing in short season seeds), but their 1994 catalog lists a pH meter. Their address and phone:

Vesey's Seeds, Ltd.
P.O. Box 9000,
Calais, ME, 04619-6102
Phone: 1-800-363-7333
Fax: 1-900-566-1620

Many private laboratories and state agricultural extension services of state universities do soil analyses, but I have found them to be expensive and slow in returning their results, so I prefer my own little soil testing kit.

How to amend acid soil

People who live in cool, moist climates where the trees are conifers will probably find their soil to be acid. Moisture leaches the alkaline calcium salts away from the soil, and coniferous trees do not use much alkaline material, so they can't *return* alkaline material when the leaves and wood decay. Also, the soil will be poor in nitrogen, because the long winters hamper the growth of nitrogen-fixing bacteria. Of course, other soils can be acid, too, so a test is the only accurate way, not only to find out if the soil is acid or alkaline, but to what *degree* it is acid or alkaline.

Acid soil first of all needs a replacement of calcium salts, and probably the best and easiest-to-get source of calcium is limestone. Limestone is better than slaked lime or quicklime, because limestone breaks down more slowly. Slaked lime and quicklime are so alkaline they give the soil too much calcium too quickly and can injure the soil. Wood ashes, bone meal, dolomite, crushed marble, and oyster shells are also good sources of lime.

Often, just correcting the pH will release enough nitrogen, phosphorus, and potassium to raise a good garden, but if testing after using a lime source shows a lack of these nutrients, there are certain materials that are better for acid soils than others. Organic matter is a good way to start replenishing the

soil, but pine needles, sawdust, wood chips, and most deciduous leaves (especially oak) are very acid and should be composted with limestone or wood ashes before using.

Good sources of nitrogen for acid soil are steamed bone meal, blood meal, animal manures, and green manures. Buckwheat is tops for building poor, acid soils. Lespedeza and sour clover are also useful. Phosphorus sources include bone meal, ground rock phosphate, raw sugar wastes, and dried blood, as well as green manures.

Potassium (also called potash) sources include green sand, sea weed, potash rock, buckwheat and millet straw, wool wastes, and wood ashes as well as the green manures.

How to amend alkaline soils

Alkaline soils, often found in desert and semi-arid regions, have an accumulation of soluble salts, usually chlorides and sulfates of sodium and calcium and magnesium and sometimes potassium, all of which are toxic to plants. Also, alkaline soils will usually have a hard-pan under the surface, which "adds insult to injury," as the old saying goes.

The first step in reclaiming alkaline soil is to work humus into it. Here, the acid leaves, pine needles, wood chips and sawdust (but not wood ashes) used raw are of great value. Peat moss is another great source of acid humus. Gypsum is useful for breaking up many kinds of hard-pan and is very acid.

Most alkaline soils are lacking in nitrogen, and since sawdust and wood chips take a lot of nitrogen to decompose, additional nitrogen is needed when these are used. An excellent source of acid nitrogen is cottonseed meal. Animal manures, especially poultry manures, are very helpful. Horse manure makes humus, but doesn't supply much nitrogen.

Blood meal and bone meal supply both nitrogen and phosphorus. Sea weed, potash rock, and green manures add phosphorus and potassium. Green manures that are especially good for alkaline soils include most of the grain crops. Alfalfa is probably the best, because it likes a flooding type of irrigation that washes away the harmful salts, and its long roots reach down and break up hard-pan. Bermuda grass, sweet clover, maize, barley, sugar beets, cotton, rye, and sorghum are all helpful in amending alkaline soils.

Grow plants that like your soil's pH

Although most common garden plants like a pH between 6.5 and 7, there are some that will thrive best in either a moderately acid soil or a moderately alkaline soil. When you know the pH of your soil, you can concentrate on those plants that will grow best in your soil.

Common acid-soil plants that do best between pH 4 and 6 are radish, sweet potato, watermelon, and berries such as blackberry, blueberry, cranberry, huckleberry, and raspberry. Peanuts and pecans also like an acid soil. Plants that like a somewhat acid soil, but can tolerate a neutral soil are pumpkin, rice, turnip, and apple.

Moderate alkaline-soil plants are peas, beans, beets, cabbage, cantaloupe, cauliflower, celery, cucumber, lettuce, onion, parsnip, rhubarb, salsify, and squash.

Because soil is continually changing, you will want to test your garden periodically to see how your treatment regimen is working. Some plants use more of one nutrient than another, and you may need to replenish more of that element. Even just standing idle can alter a soil's make-up from year to year. Get to know your soil, and you will enjoy gardening all the more. Δ

Here are some thoughts on finding your dream place — garden and all

By Alice B. Yeager
Photos by James O. Yeager

Every gardener (and would-be gardener) has a dream, and it usually centers around a neat cottage with flower beds, a manicured lawn, a small orchard, and a weedless garden spot. From the latter two come all sorts of picture-perfect fruits and vegetables, aromatic herbs, berries—you name it. Maybe there's a small grape arbor, too, always abundantly hung with fat, fragrant clusters of grapes just waiting to be harvested. Sometimes a small flock of well-behaved chickens rounds out the dream.

Many people are looking forward to just such a place when they retire. Others are wanting to move out of neighborhoods that are changing for the worse. Some may be looking for that first real home—you know, the

place where one puts down roots and raises almost all of one's food—a "Green Acres" type of place.

There are pitfalls to selecting the right spot, especially when it comes to choosing Home Sweet Home with an eye to gardening. The most important garden requirements center around *soil, water, and location*.

Soil

If one wants that garden of perfection, good soil is a *must*. When viewing property, it is well to be armed with some facts about soil. If nothing else, at least know the difference between clay, loam, and sand. Otherwise, you may end up with something you didn't count on.

Take a close look at the garden spot to determine if it has recently been under cultivation. If the owner is still on the premises, he/she can be of



Home-grown tomatoes—everyone's favorite. Celebrity is a good variety.

tremendous help as a source of gardening advice. If the place has been abandoned for some time, take a close look at the weeds and grass, as there will undoubtedly be plenty of those. If they're healthy and shoulder-high, chances are the soil is fertile. Your job will be to conquer all the seedlings that will come up. (Lotsa luck!) If there is a great supply of nut grass, look out. That may be the reason the garden spot was abandoned. When nut grass invades, some gardeners finally just throw up their hands and quit. It is a devilish opponent.

A sandy loam soil that is rich in humus is usually regarded as the best soil for general gardening. If an organic gardener has spent years working with the soil, you can bet it will raise almost anything.

Of course, sometimes that neat little place you have your heart set on may have *hidden* problems as far as the garden is concerned. Unless you can actually see the place during the peak of the gardening season, you will have to take the word of the seller or the real estate agent as to the soil's fertility. Experienced old-timers can reach down, take a handful of dirt, smell it, run it through their fingers, and tell a lot about the possibilities. To the novice, this doesn't mean much, and



Gardeners love to bring in a variety of fresh vegetables for culinary use. This basket contains squash (2 varieties), cucumbers, tomatoes, beans, and sweet peppers.

that's how some places are unloaded on unsuspecting buyers.

If you aren't sure about the soil and have questions, it would be a good idea to ask the County Extension Agent to run some soil tests for you. He can give you some practical advice as to what (if anything) is needed to make it produce those savory squash, plump tomatoes, and pounds of potatoes.

If the real estate salesman hints at other buyers waiting in the wings, don't panic. Any salesman anxious for a commission will occasionally employ this tactic, particularly if the payment is due on his Cadillac.

Water

There is hardly a garden anywhere that doesn't require watering now and then, and some more than others. Take into consideration the source of water for the garden. If it is city water, be prepared to deal with high water bills in the summer if you want your garden to keep producing during dry periods. If there is a well with a pressurized water system, so much the better.

It is surprising how many people never consider the subject of water when being shown property. They assume that if water faucets are in sight, everything must be all right.

Water is a very important item, especially when considering property



Fruit tree blossoms in springtime are beautiful, and they herald a harvest that can result in canned fruit and honey on the shelf to enjoy until next harvest.

in a rural setting. How long has the well been in use? Does the water get low during long dry spells? Is the water hard or soft? How new is the pump? Has the water been tested for bacteria lately? Where is the septic tank located? (You'd be surprised at what goes on underground.) These are only a few general questions about water, and quality varies from area to area and from hill country to the lowlands.

Above all, ask if you may taste the water. That should give you a good

idea as to its value for kitchen use. A seller with a good water supply is never hesitant about giving information regarding water. If you have reason to be suspicious of the water, ask the County Agent about having it tested. It's better to be safe than sorry.

Location

A desirable garden area should be open to the sun and slightly sloped for good drainage. It should not be closely surrounded by tall trees that cast shade a good part of the day. *Some* shade is helpful, particularly during hot afternoons, but most vegetable plants require at least a bare minimum of six hours of sunshine per day. Nearby large trees will also sap moisture and nutrients from the soil.

Gardens clinging to the sides of hills are risky sites and an awful lot of work. Some of them may be interesting, but those are for folks who enjoy challenges, like to haul topsoil, and have no other place to garden. Hard rains can play havoc with hillside gardens. And hillsides dry out fast.

An ideal location for a garden is near the house for convenience. A



Here's a neat Ozark homeplace. The shade trees are well away from garden, leaving it open to the sun.

cross-country runner might not mind a garden located 200 feet away from the kitchen, but most of us don't feel that way. And remember, those pounds of splendid vegetables are going to get heavier the farther you carry them. If you live where there is competition from animals for food, a garden handy to the house is easier to patrol.

Naturally, most real estate salesmen like to show property at its best—nice day, preferably in spring when orchard trees are blooming, gardens are being started and there's plenty of upbeat activity going on. (If house and outbuildings have had a fresh coat of paint, fine and dandy.) This is all very well, but if possible, view the place of your dreams during bad weather, especially during a time of heavy rain. That will bring to light any hidden horrors regarding the garden spot. If it's under a foot of water and fast becoming a lake, beware. Sometimes the situation can be corrected by trenching to give water an outlet. It depends on the lay of the land.

If you can't visit the place during wet weather, try the hottest day of the year during a drought. If plants are dehydrated and the ground dulls a pick-axe, you're going to have to do a lot of building-up to get that wonderful loose soil for which we all strive. Over a period of time, mulching with organic material will help, as it will

assist in retaining moisture and will return nutrients to the soil as the mulch breaks down. Also, earthworms will be attracted, enhancing the soil's aeration and fertility.

Earthworms are another indication of just how rich the soil is. Assuming that the soil is in pliable condition on the day you inspect the garden area, dig around a bit and take a look at the earthworms. Are they vigorous, plump and plentiful? Good sign. Are they few, skinny, pale, and barely able to move? Very poor soil. If you find no earthworms at all, it could mean they have been wiped out by chemicals.

But take heart, drawbacks are not permanent except in extreme cases, as almost any soil can be made productive if a gardener will make an effort to improve it. There is plenty of advice obtainable on every side: bookstores, magazine racks, experienced gardeners, County Extension Offices, libraries, and so on.

Pollution

In addition to soil, water, and location, there is another gardening factor that is increasingly of concern—one that wasn't even discussed years ago. *Pollution*. Rare is the real estate salesman who will point out the possibility of contaminated soil or water. Prospective buyers should be wary of neighborhoods that have "For Sale"

signs everywhere and no apparent reason for them.

One should make it a point to find out which industries are located in the area. Are there paper mills, steel mills, toxic dumps and such in the vicinity? Don't be fooled by nice names like "Resource Recovery" (municipal incinerator), "Sanitary Landfill" (dump), and so on.

Once soil and water are contaminated, it takes a long span of time to clean them up—much longer than a gardener wants to wait. If you find a homey little place that suits you to a "T" but has the likelihood of pollution attached to it, flee without hesitation. Who wants the pleasure of gardening overshadowed by the Grim Reaper.

The foregoing is but a sampling of things to consider when one is intent on pursuing one's dream. Above all, don't try to cultivate more space than you can manage. Nothing is more frustrating than trying to keep things under control in one end of a garden while in the other end, weeds and grass are having a heyday producing next year's crop of gremlins.

Remember, under the right conditions, gardening is fun and rewarding, both mentally and physically. So, if you're serious about having that dream place, go for it. Δ

A BHM Writer's Profile: Skip Thomsen

Skip's been writing homesteading books and articles since 1980, starting out with some stories in the original *Mother Earth News*. His first real book was *More Power to You!*, self-published about 10 years ago. There were others in the meanwhile and another since, but *The Modern Homestead Manual* was published in '93. His first homesteading experiences were in Oregon, and the one that inspired the *Homestead Manual* was his 108-acre scratch-built homestead in North Central Oregon. 1993 was also the year the Thomsens had had enough snow, ice and cold for their lifetimes and they finally decided that they were never again going to bum anything to stay warm, and they moved to rural Hawaii.

Skip is newly remarried (for the last time!) and the happy couple just bought a little home near the ocean in a tiny community where papayas, oranges, mangoes, and avocados are everywhere, and tomatoes grow all year 'round. The Big Island is a golden opportunity for those considering a comfortable, affordable, self-sufficient lifestyle, and that's going to be the topic of an upcoming article. Meanwhile, the Thomsens spend as much time as possible playing in the crystal clear, warm ocean and enjoying the tropical sun.



PV pioneer describes his successful solar home

By Paul Jeffrey Fowler

My wife Lea, my three-year-old son Terry, and I live in a passive solar home nestled in a remote corner of a small town in the Berkshire Hills of western Massachusetts. Our house is located 1.3 miles and \$20,000 away from the nearest power line. To get to our land, we drive up and over the highest hill in Worthington on a one-lane gravel road. Bob and Karin Cook, our only year-round neighbors in the 2,500 acres of land that surround us, live a third of a mile up the road.

I was born and raised on a pretty little 120-acre farm in Worthington. Unfortunately, my parents had to sell the farm I was to have inherited, just before I graduated from college. Several years after college, I returned to Worthington when my parents left me their mobile home on the lower corner of the old farm.

The trailer was of poor quality construction. I have always been someone who thought I could make something out of nothing, but I could not find anything worth saving in that trailer. I soon bought the small house just up the road which a friend and I had built several years before for my sister and

her family. It was a better structure, but like the trailer, it was located at the bottom of a narrow valley.

A perfect solar site

At the time, I avidly read all the material I could find on solar energy. I could never successfully redesign the small house into a passive solar home, because there was too little sun in that valley. In 1981, I found a nine-acre piece of land for sale with perfect south-sloping solar exposure. The only drawback was that the nearest power line was 1.3 miles away at the main road.

For years I had also been reading about wind machines and alternative energy systems. I looked at this land, so far from the power line, as a chance to do it all: build a passive solar home and power it with alternative energy. In a few months I had sold my two properties, moved to a tent on my new land, and begun to build my new energy-efficient home.

When I bought the land, I expected to install a wind machine to produce electricity. I had determined that it was a good wind site. I purchased a large generator for the building project and planned to replace it with an alter-



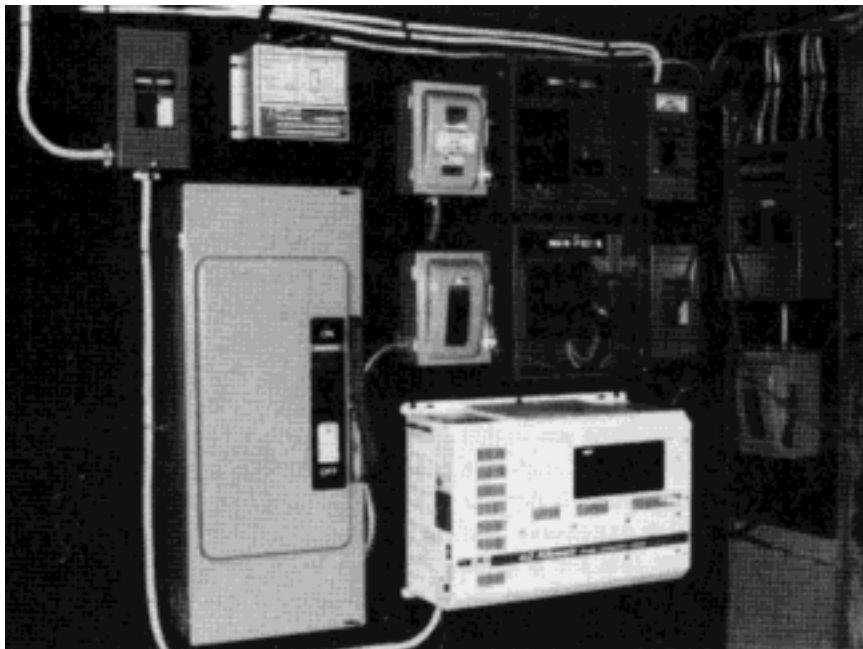
The author with his wife Lea and son Terry in front of the heat-storing stone wall in the sunspace

native energy system when I had time to design and install one. I never really expected a power line to come down the road to my house. Therefore, the whole house was designed from the beginning to be an alternative energy home, in addition to being energy-efficient. In 1982, I discovered solar electric modules and abandoned the inherent problems of a wind machine on top of a 90-foot tower. Besides, the sun shines more often than the wind blows.

Today, our house is powered by a large solar electric system. We have been more fortunate than most people who own solar electric systems. For one thing, our first systems were purchased back in the days of state and federal tax credits. Furthermore, my early research into solar electric systems evolved naturally into a successful business which sold solar electric systems throughout the Northeast.



Solar electric modules on the house and garage



System controls and 4000-watt sinewave inverter

Therefore, later expansions of our system were purchased at wholesale prices from our business. On the other hand, we were the pioneers who suffered the trials and errors of an emerging technology.

The system

On the south side of our house above the first floor windows are mounted 24 33-watt, nine-year-old Mobil Solar modules. For years, these were the sole power source for our solar electric system. Four years ago we added eight 48-watt Hoxan modules on the south side of the garage. At the time, our business offices were upstairs in the large building, and two of the three garage bays warehoused our inventory. The growing business required a lot of power to run computers and office equipment. Three years ago, we sold the remaining shares of the business, and it moved across town, leaving us with the additional electricity from the eight Hoxan modules for our home loads.

Our combined solar arrays are rated at 1,200 peak watts. This rating means

little to anyone but a solar electric engineer with a program to size systems. In practical terms, after we derate the modules for actual operating temperatures, and account for losses associated with charging lead-acid batteries, we have a daily summer average of 4,800 watt-hours to power loads in our home. In the winter, when the average insolation is low, we have a daily average of 2,400 watt-hours. Quite logically, we have approximately 3,600 watt-hours in the spring and the fall.

Figuring the angles

Our site is at 42° latitude. The standard angle to mount the modules on an adjustable mounting structure is latitude minus 15° in the summer (27° above the horizon), latitude in the spring or fall (42°), and latitude plus 15 degrees in the winter (57°). For a non-adjustable mounting structure, the array is typically installed at 42°, to obtain the greatest amount of power over the whole year. We have chosen to mount our modules on

non-adjustable structures at the winter adjustment of 57°.

Winter is the hardest time for our solar electric system. The insolation is low in the Northeast, and the short days require longer lighting loads. We are purists and do not depend on a generator to charge our battery bank in the winter. Instead, we have sized our system to meet our conservative winter loads and know we will have extra electricity in the other three seasons. Therefore, it is not necessary to adjust our arrays for the other three seasons to get additional power. The steep 57° angle of our arrays produces 20% extra power in the winter, because the modules can also pick up reflected sunlight from the snow on the ground.

Both the garage and house arrays have their own charge controllers and the associated fuses and disconnects to satisfy the requirements of the National Electrical Code (R). They both charge the same large battery bank in the basement of our house. The controller for the smaller garage array turns off before the controller for the house, so that the charging is somewhat “tapered” as the batteries approach full charge.

Our battery bank is composed of 32 6V (6-volt) 200-amp-hour golf-cart batteries wired in a 24V configuration. Many people in the industry recommend larger batteries. We sold the best quality Trojan golf-cart batteries in our business for years. We had fewer failures with them than with the larger Trojan L-16 batteries. The golf-cart batteries have the same plate composition as the larger L-16 batteries, but they are mass produced, so they cost 30% less per amp-hour. Our batteries are now 6½ years old. We expect them to last over eight years, while L-16 batteries are expected to last ten years.

Our solar electric system and home are wired to code and inspected. Our house wiring has about one circuit per room to power a selected 24V efficient lamp or lighting fixture. This

wiring system and DC (Direct Current)-rated circuit breaker box are left over from our earliest solar electric system. Some of these lights are used every day, while others now serve only as backups. The house is also fully wired for 120VAC (Alternating Current). This electricity is supplied by a 4000-watt, sine-wave, Trace 4024 inverter powered by the large 24V battery bank.

Conservation is the key

Our solar electric home uses about one-third as many watt-hours per month as my last grid-connected home. We live at a similar level of comfort in our present home, because our electrical usage has been decreased by the design of our home and the choices we have made for efficient appliances. Well-planned conservation is the real key to a successful independent home. The electricity we produce costs about 30¢ per kilowatt-hour after we factor in the costs of all the components and their maintenance and life expectancy. Solar electricity becomes a money-saver for us only after we consider our conservation and the \$20,000 we would have to pay the utility company up-front to extend the power line to our home.

We pride ourselves on having an alternative energy home that does not appear to be different to someone who visits for a weekend. We have no complicated systems of switches and *do's* and *don'ts* to follow. Conservation is designed into the system.

Solar heating

Our well-insulated, passive solar home is heated by the solar gain of our south-facing windows. The solar energy heats the house to 75° even on sunny days of subzero weather, which are quite common in our cold New England winters at 1700 ft. above sea level. Solar heat is stored in interior stone walls and in a concrete slab that is covered with Vermont slate. The

balance of our heat is provided by two cords of wood burned in our basement wood stove. We have none of the standard electrical loads of running a furnace and its circulating fans or pumps.

We have eliminated other common large electrical loads. We use a propane refrigerator, stove, and tankless hot-water heater. Our home was designed to utilize daylight. Most walls and ceilings are white, so no additional electric lighting is needed until sunset. Our electric lighting is carefully placed in all the rooms. We have chosen fixtures and lamp shades that efficiently transfer the light from the bulbs to the room, reducing the need for large bulbs or many lights in a given area. Wherever possible, we utilize compact fluorescent bulbs.

Our source of water is a deep drilled well 200 feet from our house. Because the static water level is 30 feet below grade, our best choice for pumping water was a standard 120VAC submersible pump. Our electrical loads would be less if we had a shallow well that could be pumped by an efficient low-voltage pump, or if we had a gravity-fed water supply, as our neighbors do. But we are fortunate to have crystal-clear pure water from a high-yielding well. We recently reduced our water budget and its associated electrical loads by installing a new washer that uses less water and by designing an efficient underground watering system in our raised-bed garden.

Normal appliances, plus a bit of planning

We have the common 120VAC appliances found in most American homes, such as a clothes washer, color TV, VCR, vacuum cleaner, computer, and stereo. We chose them carefully for efficiency. In addition, we think about each appliance's use, to keep in balance with our seasonal production of electricity. When possible, we have given extra consideration to certain

appliances. I now mostly use my notebook computer, which uses 15 watts, while my desktop computer uses 100 watts. Our 25-year-old Electrolux vacuum cleaner sent our ten-year-old Electrolux into retirement when I found it used 400 watts compared to 900 watts. A few months ago we purchased a Staber clothes washer because it uses 250 watt-hours per load instead of the 450 watt-hours per load needed by our standard model.

When the house was two-thirds built, I bought my first inverter and immediately sold the generator. The rest of the house, buildings, and additions were built with power tools powered by solar electricity. We own all the usual carpentry tools from drills and a circular saw to a screw gun and a router, plus some larger ones like a table saw, a radial-arm saw, and a planer. In the past, we carefully selected these tools to not exceed the surge capability of our inverter. Our new 4,000 watt inverter will start any of their large motors easily. The electrical energy used by these large wattage tools is not terribly significant, because they are running a very small amount of time during any given work day. However, we do plan our projects for the right time of year. When a project requires shiplapping the siding for a garage, or planing boards for a floor, we do the job during a sunny spell, or during a season of abundant sunshine.

We have no freezer. A standard freezer is too inefficient, and we feel the efficient low-voltage models on the market would still put a large strain on our system in the depth of winter, since we choose not to use a generator. We do have a one-cubic-foot deep-freezer in our gas refrigerator. For six months of the year, we eat fresh vegetables from our garden, utilizing cloches to extend our growing season. For seven months of the year, we can use our large walk-in cold-storage room as a giant refrigerator and almost root cellar. This area is cooled by passive air circulation whenever the outside temperature is



Propane refrigerator and freezer

lower than the temperature in the cold storage room.

Living in an independent home with solar electricity is incredibly different from living in a grid home. A family in a grid home can use as much electricity as they want. If Grandma comes in January, a grid home can crank up the electric heat in the extra room. An alternative energy system requires an investment in a system that can produce a certain amount of electrical energy. After that, living is a matter of balancing the loads to the system's production and seasonal variances.

Over the years, I have watched some people live naturally in alternative homes and other people move or pay to bring in the power line. Sometimes one member of a couple loved the alternative-energy life while the spouse could not adapt. Lea, Terry, and I are successful in our independent home because our home and our solar electric system are well-designed, and because we work together naturally keeping our homestead in balance. The efficient raised-bed garden, the chickens, the passive solar house, the solar garage, the solar electric system, and our philosophy of life function interdependently.

(Paul Jeffrey Fowler is the author of [The Evolution of an Independent Home: The Story of a Solar Electric Pioneer](#) and [The Solar Electric Independent Home Book](#), both available from Backwoods Home Magazine [order form on page 96]. He is also the founder of Fowler Solar Electric, Inc.) Δ

A BHM Writer's Profile: Robert L. Williams

Robert L. Williams has been a freelance writer/photographer for more than 30 years. A former professional baseball player and a teacher for three decades on the high school, college, and university campus, he has sold several thousands of articles and photographs to leading national and international magazines. Among the publications that have purchased his writing and/or photos are *Money Magazine*, *House Beautiful*, *Southern Living*, *Our State*, *Sandlapper*, *Modern Maturity*, *American Legion*, *Rotarian*, *Our Navy*, *Elks Magazine*, the *Compass*, *Hughes' Rigway*, *Grit*, *Copper's Weekly*, *Baseball Digest*, and others.



The author of 36 books, either published or under contract, Williams has written books published by G. P. Putnam, W. W. Norton, TAB, McGraw-Hill, Allyn and Bacon, Donning Publishers, Berkley Publications, Herald Books, Hastings House (subsidiary of United Publishers Group), Loompanics, and Southeastern Publishing, Inc. His books include how-to, self-help, autobiography, history, labor history, a college English textbook, pictorial histories, mystery and suspense novels, baseball nonfiction, and general interest novels.

Some of Williams' titles include [Starting Over](#), [The Thirteenth Juror](#), [Daytrips in the Carolinas and Georgia](#), and, most recently, [100 Practically Perfect Places in the North Carolina Mountains](#). He is also author of a book on how to build log houses.

At present, Williams is editor and author for Southeastern Publishing Corporation. He continues to write for *Backwoods Home Magazine* and for a series of travel and general-interest magazines.

A BHM Writer's Profile: Robert L. Williams III

Born in 1976, Robert L. Williams III was among the youngest writers/photographers ever to be published. At age 3 he had first appeared on NBC's Today Show where Tom Brokaw and Jane Pauley introduced him to the American public as the youngest photographer in history to be published. At age 4 he was selling photos to many magazines, book companies, and newspapers. At age 5 he was under contract with the Vivitar Corporation as a photographer, and that same year he had a one-man show at the Las Vegas Convention Center at the World Photo Marketing Trade Fair.



When he was in the sixth grade, Robert sold his first story to a national magazine: an article on gardening to *Mother Earth News*. Since that time he has written many articles and taken photos for newspapers, including the *Charlotte Observer*, and for magazines that include *Foothills*, *Our State*, *Backwoods Home Magazine*, *InSights*, and a number of others.

He had co-authored a hiking book (along with his parents) that is now in its sixth printing. He has also written a mystery/suspense novel based on events related to the tornado that destroyed the family home. Now in college, Robert was among 20 Honors Students selected at Cleveland Community College. He is now a junior at Gardner-Webb University. Robert makes his home with his parents in Belwood, North Carolina.

Homesteading on the electronic frontier

By Martin Waterman

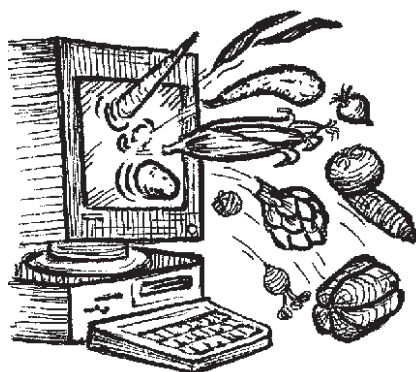
Harvesting the Internet for gardening information

Cicero, the much noted Roman statesman and orator (106-43 B.C.), said, "If you have a garden and a library, you have everything you need."

I wonder what he would say if he were alive today to see and use the Internet. He would have almost instantaneous access to thousands of libraries, universities, government agencies, web sites, and news groups around the world. Of particular interest to him might be the many Internet sites that have information on gardening, farming, and other aspects of horticulture.

So I'm going to take you on a tour of a few dozen of those horticultural related Web Sites and news groups to show you what they are like. I have chosen most of them based on the fact that I have used them and found useful information and, of course, some new friends. For veteran users this will provide some new places to surf and check out. For those who have not yet made the jump into cyberspace, I hope this will give an indication of the type of resources that are available.

There has been much press about the dark side of the net and many fluff pieces in the media about the "gee whiz" or "what a wonderful novelty" aspects of the Internet. The fact of the matter is that those who know how to use the Internet use it to save money, make money, and enhance their lives. In many instances, my own circumstances for example, it is one of the key factors that permits me to enjoy a rural lifestyle.



News groups

The benefits of the news groups is that since they are interactive, you can get answers to your questions in a very short amount of time from the people who use the groups. If it is an active news group, one with many users, you will also be blessed with numerous answers reflecting diverse opinions from people around the globe. This will usually give you a number of alternatives to explore. Usually when I post a garden question, which is something I often do as a garden writer and avid gardener, I usually get more answers than I need within a very short amount of time, usually under a few hours.

News group members not only exchange ideas, they often exchange seeds, cuttings, and plants making the news groups a terrific resource for those seeking hard-to-find or specialty plants. There are many news groups that deal with gardening and related issues. Press the "Usenet" button (or use a news reading program), then type in any of the names of the news groups described below.

alt.agriculture.fruit is a good resource for those who grow tree fruit, berries, and grapes. One of the most common questions I receive is how a grower should go about marketing their fruit, and this is a topic often discussed. Of course, any cultural or pest problem can also be discussed, and I have found people who use this group to be very knowledgeable and helpful.

alt.agriculture.misc usually discusses farm issues. If you are a serious grower or farmer, you will find a supportive community of like-minded individuals.

alt.bonsai is strictly for the bonsai enthusiast, a discipline which many gardeners like to try now and then. Some of the rural people in my area are doing well starting bonsai plants and selling them to nurseries and garden centers.

alt.landscap.architecture discusses landscaping issues from plant selection to heavy duty landscape construction projects. It's also an active place at times for those who are seeking landscape work.

rec.food.preserving is one of my all-time favorite news groups. When I have an abundance of apples, beans, grapes or any other type of produce, I check into this group which discusses preserving foods. It is great fun to swap recipes, and I have received some real good ones. Many of the people who post are masters at preserving food, and I highly recommend this group.

rec.food.veg.cooking is another excellent resource for those who are blessed with bountiful harvests and are looking for new ways to serve up those legendary country meals.

rec.gardens is the mother of all gardening groups. There is constant debate on splitting off subgroups such

as for house plants, but for the most part this group covers a broad range of topics. During gardening season I have seen it with as many as 1000 postings.

rec.gardens.orchids is for orchid enthusiasts. I never knew there were so many orchid fans until I checked out this group. If you like orchids, this is the place. Members will steer you to orchid WWW pages with spectacular photographs.

rec.gardens.roses is for the rose connoisseur. This is another one of my favorite groups, and I lurk to see what new and historic varieties I might consider trying.

rec.ponds is about ponds. Many will argue that no country place is complete without a pond. This group is dominated by gardeners in search of the perfect backyard pond. Discussions include fish, water lilies, aeration, waterfalls, plants, algae, and other issues.

sci.agriculture discusses the science of farming but is also a useful resource for serious gardeners.

sci.bio.botany is the place I go if I have a gardening question that is quite scientific or complex in nature or just to learn tons of interesting things about the plant world. This is an excellent place for those who love botany or are interested in the scientific aspects of plants. Recent discussions have included the study of botany in terms of geometric forms, restoring and creating ecosystems, and misting propagation.

Software problems

Obviously, if you are finding gardening information online, you are using a computer and software. There are news groups for all the major software packages. These are excellent places to visit, especially if you are having software problems.

One day I had a problem with WordPerfect, and even though I still had free technical support, it was late and I would have had to pay for a long

distance phone call. I remembered seeing a WordPerfect user group, so I went onto the Net and quickly found it. I was surprised that numerous other people were having the same problem and the solution was posted. I had my answer in less than a minute. When there is no information posted on my problem, I post a question and then go about my business. The traffic is heavy on some of the news groups and often I have my answer in less than an hour.

Even if you are not having problems, the software news groups are a wise place to check from time to time. Discussions cover new releases, add on products, tricks to make programs more efficient, and often commentary and dialogue from the developers themselves. Information is also available on where to download drivers or other products or information that can make the program perform better.

WWW garden pages

Using my web browser, Netscape, I hit the "search button" and chose Web Crawler as my search engine. I typed in the word "gardening" and was presented with over 800 links to pages that were either on gardening or had a mention of gardening. Obviously, I could have done a more specific search such as for the word "peppers," "composting," "tomatoes," or any other better defined gardening topic. I once made the mistake of doing a search for "apple" forgetting it was a major computer make so I have learned to define my searches better. When I find a site I like, I "Bookmark" it. This way I need only look at my bookmark menu and point and click on the site to find it. This means I don't have to redo a search for a particular or favorite site.

When I want to look for new gardening web sites, I usually will start with a search using one of the many search engines. Many of the sites that are found usually contain links to other sites. Some of the sites can be

quite extensive, especially if it belongs to a university or large organization such as the Brooklyn Botanical Gardens.

With so many sites it is hard to choose a favorite so I will give an example of a few I just used and have used before.

Books that Work makes gardening software (3D Landscape) and has a Gardening Web Directory Page <http://gardening.com/urls/toc.html>

It has links to many of the most popular gardening sites, such as Botanical Gardens, where you can take a visual tour and view plant material and general gardening sites. It also has links to insect and entomology sites to help you identify insect pests, as well as links to botany, landscape, environment, and gardening catalogs and supply pages.

The Internet Gardening site <http://learning.lib.vt.edu/garden.html> also contains a number of links, including the Royal Botanical Gardens at Kew in Australia and the University of Delaware Botanical Gardens. In the colder winter months, I really do like taking the tour of botanical gardens from the warm comfort of my computer.

<http://garden.burpee.com/> is the address of Burpee Seeds. More and more seed companies are putting their wares on the net. Burpee's site features their new blue rose, blue corn, and blue poppy. It sure beats filling out a card and mailing it by snail mail and having to wait several weeks for your seed catalogs. In addition to the seed catalogs, other garden related companies such as Troybuilt, which sells tiller, are also going online.

Another good place to start is the Yahoo index of gardening sites http://www.yahoo.com/Recreation/Home_and_Garden/Gardening/ It is probably the most thorough gardening directory on the World Wide Web.

This last week, I used several WWW sites. This included The USDA-ARS Pesticide Database <http://www.arsusda.gov/SRLHome>.

html since I had some questions about how fast certain pesticides break down. This site serves pesticide companies, farmers, environmentalists, gardeners, and other interested parties. The database covers hundreds of pesticides including more than 95% of the most popular ones. For each pesticide, the database describes up to 16 chemical, physical, and biological features that influence its breakdown rate and likelihood of entering surface or groundwater. The data is designed to be utilized for use in crop and soil computer models, which account for soil, temperature, and other local factors that affect pesticides.

Another interesting site for starting out is the GrowRoom **<http://a1.com/growroom/>**. The factors that make the GrowRoom such a good starting point is that it has some very useful links. A new addition to the GrowRoom is a list of hydroponic suppliers worldwide, currently about 200. There are also links to others, and a place where frequently asked questions are answered. GrowRoom's website continues to grow and will soon contain book reviews and product critiques of the commonly available hobby hydroponic units as well as indoor lighting, light moving devices, and hydroponic plant nutrients.

Gardening magazines

Many gardening magazines are going on the net, offering samples of their articles as well as links to other sites. The Growing Edge Magazine deals with hydroponics and issues for advanced gardeners **<http://www.teleport.com/~tomalex/>** Don't forget that you can also visit *Backwoods Home Magazine* **<http://www.snowcrest.net/backwood/>** and don't forget to bookmark it as it grows to include more links, articles, and features.

The University of Southern California has a site that heralds the type of sites we may see in the future. It is called CyberEden and allows any-

one, (providing they register) to operate a computerized robot arm from their home computer in order to care for a small garden.

The project is co-directed by the USC school of engineering, and the project has already won a prize for excellence at a recent computer exhibition. The address to the site is **<http://www.usc.edu/dept/garden/>**

Before I visited the site I had wrongly anticipated a scene out of the Jetson's. When I arrived I found myself at the controls of a robot arm that is anchored in the middle of a large circular planting box.

The procedure to participate in the TeleGarden is to first fill out an e-mail application so that you can be a member of the TeleGarden cooperative. After joining, you can plant seeds and then water them regularly. One of the interesting things about this technology and social experiment is that nothing stops one member from planting in the same space as another, or even crushing a plant they don't like. One of the objectives of this site is to slow down Internet surfers with short attention spans and provide a place where they can become more involved.

Asking which garden sites to go to is sort of like asking for a good place to go camping in North America. The answers are vast, and they vary depending on preferences. You can also use Archie and other software (included in most Internet Suite software packages or available as free-ware or shareware over the Net) to access almost 10,000 universities. Many of them have extensive horticultural information including the latest research and information on how to grow commercial crops. Cornell University is a favorite of mine, especially for fruit growing information.

The more you can focus on a particular piece of information, the more effective your searches will be. When you find information that you like, you can save it to a file and then read it offline to help keep your connect charges down.

Eventually, you can build your own Bookmarks directory of sites that support the type of gardening you do. The Internet has had a great influence on the types of crops I grow and how I grow them. It has become a quick reference encyclopedia, a learning tool, entertainment, and, of course, a place to visit with like-minded individuals.

(Questions, comments, and information of interest to *Backwoods Home* readers can be sent via the Internet to Martin Waterman at waterman@nbnet.nb.ca, or to other editors of *Backwoods Home Magazine* at backwood@snowcrest.net. *BHM's* Internet address on the World Wide Web is <http://www.snowcrest.net/backwood/index.html>.) Δ

A BHM Writer's Profile:

John Silveira



No one at *BHM* knows what Silveira does but he may be responsible for the Y2K crisis. In his younger days, he served as the village idiot in a number of New England towns until, by law, those positions were made elected offices. He lists his accomplishments as almost graduating from high school, his extensive collection of autographed pictures from Elvis Presley impersonators, and his fourth-place finish in a Gary Coleman look-alike contest. John would like to hear from desperate women with low self-esteem who would think he was a good catch.

When John grows up he wants to be a superhero.

Eating crow isn't that bad

By Bill Palmroth

To most of us, the term "eating crow" has to do with someone being forced to retract an emphatic statement or admit that he or she is wrong. Yet crows have been eaten, literally, by a surprising number of people around the world.

In England, young crows are considered a great delicacy. In France and Germany, crows are shot at any age, young or old, and used to put in vegetable stew. They are also used in bouillon soup.

In North America, however, most of us think of the crow as a pest, and it is rarely eaten. That's unfortunate because, when properly prepared, crows are very good to eat. Young crows have a very tender and mild meat much like squab, young pigeon, or woodcock, and it is every bit as good.

Check your state's game laws before hunting crows because in some sections of the country these birds are protected by law.

Here are a few suggestions on the proper preparation of crows for the table:

The older birds should always be skinned instead of plucked. This is much easier if the feathers are not taken off. Only the meat of the breast and legs should be used. Young birds may be roasted like squab but the use of butter or slabs of bacon is absolutely necessary as crow is inclined to be quite dry.

Crow broth

The breast and legs should be browned a little in butter and then boiled with small quantities of celery until tender. Use water in normal proportions according to the quantity of broth desired and the available amount of meat.

Sandwich spread

This mixture is worth trying. The boiled meat should be carefully inspected and all bones removed. It should then be run through a meat chopper. To the well-minced meat add small quantities of mustard, finely chopped onion, salt, pepper, and a bit

of mayonnaise. A dash or two of paprika will add to the mixture, and it may be kept for a reasonable length of time in the refrigerator.

Crow stew

Brown some large onions in bacon fat at the rate of one large onion to the average bird and add the meat, salt, and pepper to taste. Smother for a few moments in the onions and add enough water to cover the meat. Let it simmer over low heat until tender and stir in some sour cream mixed with a teaspoonful of flour. Your other favorite ingredients for stew can then be added.

To prepare crows similar to squab, clean them thoroughly, rub with salt and pepper, and add a bit of lemon juice. Some cooks have been known to add some finely-crushed juniper berries in place of the lemon juice. You may also want to stuff the young birds with whole mushrooms.

Wrap the bird completely in strips of bacon, tie together, and boil or roast like squab. The breast of crow squab may also be dipped in egg and bread crumbs and fried like cutlets.

If you try these recipes and don't agree that the birds are really quite delicious, I'll be the one eating crow.

Protect those young trees from frost and vermin

By Tom R. Kovach

Young trees that are only several years old have thin bark and are easily damaged. They need protection, especially in the winter months.

One of the problems is sunscald, which occurs when temperatures are above freezing in the daylight hours, but drop to freezing temperatures at night. This sudden change in temperature kills cells in the bark, causing afflicted areas to die and peel off during the next growing season. To pre-

vent this from happening the trunks should be wrapped with material which either shades the trunk or reflects the sun to prevent excessive warming. You can use aluminum foil, waterproof tree wrap, or burlap.

Another problem for young trees are nibbling animals such as rabbits and mice. Dave DeCock, a County horticulturist in Fargo, North Dakota, says that fruit trees are usually the first trees attacked by rabbits. And if a tree gets eaten off below the graft, it will usually die.

Rabbit and field mice damage can be avoided or at least reduced by wrapping the tree trunks same as you would for sunscald. Or you can spray or paint on common repellents. These are available at garden stores.

You can make your own repellent by mixing 85 percent raw linseed oil, 5 percent household detergent, and 10 percent water. Apply with a small sprayer or with a paint brush. You should reapply after heavy snow melts but that should not be a problem during the winter.

You can also fence each tree by using a cylinder of 1/2-inch mesh fencing. This will deter rabbits, says DeCock, but a finer mesh fencing or a solid retainer is needed to repel the field mice. Δ

Don't have a cow! (Get a steer instead.)

By Tanya Kelley

Shortly after we moved to our farm and began our struggle for self sufficiency, we had made considerable progress. The chickens were laying plenty of eggs, our first pig was back from the butcher, and the garden had provided us with more than enough produce. The eating was definitely good, but we still had strong hankering for beef. Unfortunately, the price of beef feeder calves was well out of reach of our limited finances.

When a friend mentioned that Jersey calves were selling for veal at the auction for around \$20, the wheels started turning. Why couldn't we raise a Jersey for beef? A little research was in order. I soon discovered that Jerseys were not considered practical to raise for beef because they did not get as big as the beef breeds. That seemed to be the only complaint. So, despite the snickers, long looks, and

flat-out "It'll taste terrible" comments of some "experts," we decided to take the plunge.

The results were well worth the effort for anyone. If you are considering raising your own dairy beef, here are a few of the lessons I learned. I think you'll be pleased with the results.

Buying a calf

Buying a healthy bull calf can be tricky. Fortunately, we had a friend who went and purchased our first one for us. When she presented me with an emaciated-looking (to my eye), wobbly calf, I thought she was crazy. Our vet reassured me that calves just come that way. In fact, day-old calves that look well-fed have often been *overfed*. Overfeeding can cause *scours*, which is often fatal.

There are several things to look for. Check for scours (diarrhea). Manure should be ploppy, runny, and brown.

If it is a yucky yellow and watery, steer clear of that calf. If the calf has scours, his legs and tail will probably be a mess.

The umbilical cord should not be swollen, infected, or hard, and there should be no ruptures. The calf should breathe clearly, with no rattles, and there should be no green or white discharge. A clear, slimy coating of the nose is typical. Shriveled-looking ears and tail indicate the calf is suffering from a vitamin deficiency. The feet should seem sturdy. The calf should have bright eyes and seem perky. And don't let the wobbly walk fool you—if he gets loose, he can run faster than you or me. Trust me.

It's a good idea to check with the locals about the reputation of nearby auctions and breeders. Occasionally you can get source recommendations from your vet, extension agent, or feed dealer. Your vet will also be able to advise you of any problems common to your region, such as selenium deficiencies.

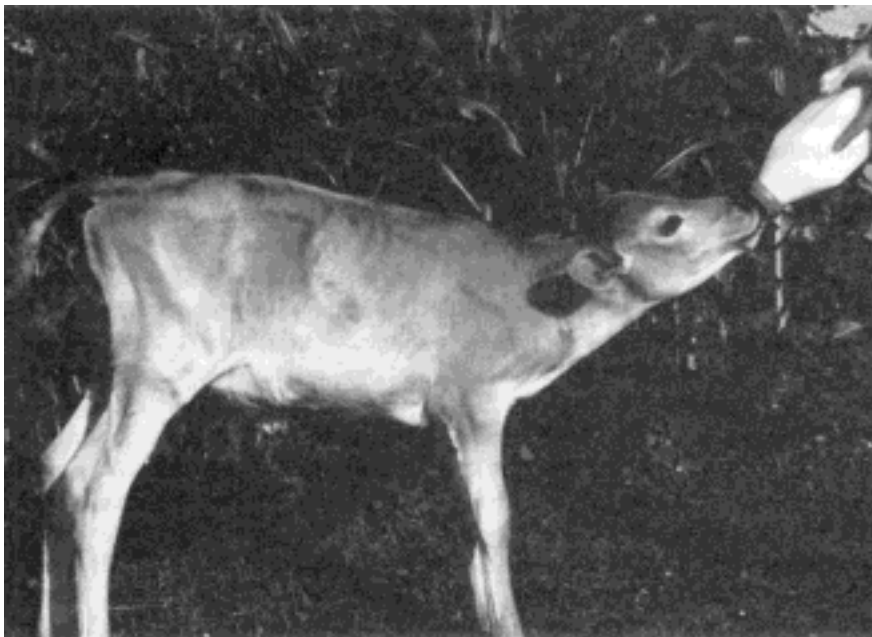
Bringing baby home

When you get your calf home, it is a good idea to give a shot of penicillin and vitamins if the calf has had no colostrum. Dip both the navel and hooves in a 7% iodine solution to toughen them and prevent infection. Your vet can recommend any other precautions you might need to take.

We buy calves in the spring, only because it is more pleasant weather for bottle feeding. We stack bales of hay in a corner of the barn to make a cozy temporary stall. It cuts down the drafts and lets us keep a closer eye on them for the first week or so. Calves can take cold, but they must be kept dry and out of drafts. We bed them in deep straw. You can also use sawdust, but make sure it's not dusty. We don't



This steer has the smooth hips and filled-out brisket (chest) that show he's gotten his growth.



This day-old calf looks pretty skinny, but that's normal in a healthy calf. With proper care, he'll gain weight quickly.

put calves together if they're more than six weeks apart in age.

Feed a good quality calf milk replacer with a 40 to 60% fat content. Get a bottle and some calf nipples, available at your feed store. We usually start our calves out with three pints of warm water or electrolytes for the first 12 hours and give half-strength milk replacer for the next two feedings. We feed three times a day for four days and then twice a day, three pints, morning and night. Calves usually know how to eat, and can drain a bottle in nothing flat. The sucking reflex is strong, and so is the urge to butt the bottle. When they are nursing on a cow, that butting stimulates the milk to let down. When they butt on the bottle, it can stimulate you to drop the bottle, or even get whacked with it.

When the bottle is empty, they still want some more. No matter how pathetic they seem, don't feed them more or let them suck on an empty bottle. Let them suck on your fingers if it will relieve any guilt, and remember that overfeeding can cause scours. You can gradually increase the milk to

four to six pints, starting on the eleventh day.

Clean the bottles and nipples with hot, soapy water. Rinse well and turn upside down to dry. As an extra precaution, I rinse the bottles with bleach and water every few days. Again, rinse well.

At four days, introduce grain. It may take several tries, but they do catch on. From that point on, the calf should have free access to a calf starter or grain mixture with a supplement. Check with local feed manufacturers to find the best quality and value. We have had considerable success with Moorman's feed supplements mixed with grain we buy from a local farmer. We begin with one part corn, one part oats, and one part Moorman's Mintrate for Cattle.

Leading and "steering"

Train the calf to a lead . . . while he still weighs less than you. Start with a calf halter and two people to help (one to pull and one to push). Keep a steady tension on the line until the calf steps (or is gently pushed) forward.

Let the relief from the tension be the "reward." Keep repeating until the calf steps forward willingly.

Continue leading on a regular basis. Don't wait until the day you have to take your steer to the vet unexpectedly, or he gets loose and you have to take him home. An ill-mannered, galumphing, 800-pound steer will go pretty much where he pleases. With or without you.

Peppermint candies given as treats occasionally can be helpful. The first time, you may have to put it in the steer's mouth. After that, you can just crackle the plastic wrapper and he will follow you anywhere. That crackling noise can be the deciding factor when you are 10 feet away from a loose steer that is contemplating a gallop through your neighbor's flower garden.

Dehorning and castration

You might decide to forgo the dehorning, but one whack with a grown steer's head will probably cause some serious regrets. Steers play rough, and they have no idea how fragile people can be.

Castration is a must. If the steer is not castrated, the hormones will taint the meat. There are banding kits, or you can have the vet band or cut them. We have used both methods and definitely prefer banding. While slower, it seems to be relatively pain-free, and it doesn't attract flies. You can have the vet come out, or save the cost of a farm call by packing your 70-pound calf into a small pickup or even into some cars. (Put down plastic!)

At four weeks (depending on the weather), we usually move our calves to an outside pen with a three-sided 12- by 12-foot run-in—plenty of room for two calves. The pen itself is 25 by 50 feet, made of four-foot woven wire. Unfortunately, we learned early on that steers can do a lot of damage to our neighbor's yard. Sturdy fence and gates are definitely in order. Good neighbors are also a plus.

You can keep your calf in open pasture, but the quality of the meat will be lower, and so will the weight gain. The more grass the calf eats, the less corn he will eat, and that results in a lower weight gain.

You can wean the calf off the bottle and get him drinking from a bucket. To do this, dip your fingers in the milk and hold them just above the milk. When the calf starts sucking, gradually lower your hand down below the surface of the milk. After considerable snorting and choking, most calves will allow you to remove your fingers. I usually have to repeat finger feeding several times. I have come to the conclusion that, while bottle feeding may be messy, bucket feeding is more time consuming and results in calves that never really seem to lose the desire to suck on everything.

Depending on how well the calf is doing and how much grain he is consuming, you can wean at about six weeks. Usually at this time, the calf will be eating 1½ pounds of grain a day. Take him off the milk gradually by diluting it and offering him plenty of water with a little milk replacer

mixed in. As the calf starts drinking the water and eating more grain, cut back on bottle feedings. It takes a week, but most calves make the transition quite smoothly. However, we did have one calf that refused to eat grain and glutted himself on the milk water. It was difficult, but at eight weeks old, we finally eliminated all milk replacer and made him go cold turkey. Within 24 hours, he got the picture.

Generally, we don't feed our calves a feed supplement with antibiotics. According to most manufacturers, feeds with antibiotics will result in a faster weight gain, but we decided we didn't want to unnecessarily bombard our animals or our food with antibiotics. The only other medication we use is a wormer at four months. Again, consult your vet for recommendations.

At two months, gradually change feed proportions to one pound mintrate per calf, no oats, and all the corn they can eat. They get one flake of hay a day. The roughage helps them digest better, resulting in faster weight gain.

We have a large wooden feed bin that allows us to dump up to 150 pounds of corn in at a time. We top dress the corn each day with mintrate. In addition to unlimited grain, keep plenty of water and a large mineral salt block available at all times.

Any changes in feeding must be gradual. Sudden changes to grass, different brands or amounts of feed, or large amounts of garden waste or table scraps can cause illness or diarrhea.

Do not feed yard clippings. Innocent-looking plants can be deadly. My friend's Jersey nibbled on some yew and was dead within the hour. Apparently yews contain arsenic.

Cleanup

Our calves are usually in an outside pen which requires only a rare cleaning. When winter really hits, we move the steers into the barn. On good weather days, they go in the pen for the day and into the barn for the night. The worst stall cleaning I have had to do takes me about 15 minutes a day and results in one wheelbarrow load of garden fertilizer. I pick out the wet and dirty spots and add two or three flakes of straw. We use a bale or a bale and a half of straw a week for two calves for about 16 weeks of winter.

Keeping records

It's a good idea to keep a record book of your feed purchases, vet expenses, animal costs, weight gains, and other data. Tracking spending can show you where there is room for improvement, and best of all, you can feed your friends the best steak they ever ate, and then gloat about the ridiculously low cost.

Weigh the calf by picking him up and standing on bathroom scales. Then subtract your weight to get the calf's weight. Obviously, you won't be able to weigh the calf by this method for long. You can take your steer to a local scale to track weight



He's finished his meal of milk, but he still wants to do some sucking, so he's making do with fingers for a while.

gain, but there is a simpler (though less accurate) way to track progress.

Many feed stores and vets will give measuring tapes that measure weight by measuring “heart girth” (around the steer, just behind the front legs). You can track progress with these, but the weight may not be accurate. Our first steer weighed 70 pounds less at the butcher’s than the tape indicated.

Tracking our first calf showed us that we finished him off with an average weight gain of 1.8 pounds per day, at a total cost of less than 85¢ a pound. He weighed 879 pounds at butchering. Our take-home beef was 468 pounds. Our techniques have improved, and our current steer appears to be gaining 2.1 pounds a day. Our cost will probably finish out at about 90¢ a pound, due to increased grain prices. The cost includes the purchase of the calf, feed, vet expenses, straw, and butchering. Try to find hamburger at 90¢ a pound . . . let alone steak.

Finishing and butchering

Improvements in our procedures have enabled us to bring our current steer to be finished in about 13 months. Our first steer took 16 months.

Knowing when your steer is finished can require some educated guessing. When your tape is registering a weight between 900 and 1000 pounds, you’re probably right there.

Check that the brisket (the chest) is no longer just loose folds of skin, but is filled out. Ribs should be well covered and the hip points should be smooth and not protruding. At that point, you *can* continue feeding him to a higher weight gain, but the gain will be of a higher ratio of fat to meat, so it’s not cost-effective.

Not all butchers are the same, so it’s a good idea to get references. Find out costs, custom butchering procedures, options for packaging, smoking, deboning, and labeling procedures—both for customer identification of

meat and for the different cuts. Find out how far in advance you must arrange the butchering date. Some butchers offer pickup or can refer you to someone to pick up your steer.

Custom butchering can make the biggest difference between your beef and commercial beef. Commercial beef is often butchered and then placed in heat-shrink plastic bags where it can be held up to 30 days before being sold. You can have your beef hung for one to two weeks to allow the fiber of the meat to break down, resulting in a very tender meat. You can also choose the fat content of your hamburger.

Most butchers are happy to explain the different cuts and other options. We usually take all the meat, even cuts we don’t use, such as the brain. We give our neighbor any cuts we don’t use, as well as several prime cuts. It helps make up for some of the bald spots in her yard. We have the bone scraps cut for the dog, and we bring the beef fat home for making soap. The one thing most butchers don’t give back is the hide. That is included as part of the cost of butchering.

A home freezer may be large enough to store your meat, but renting a local locker may be a better choice. There are no worries about freezer failure, and you still have room for your frozen vegetables. We rent a locker for \$5 a month at a local grocery store. Once a month, I pick up a few weeks’ worth of meat and store that in the freezer at home. That has eliminated the temptation to eat all the steaks first and the liver last. We pick up a balanced order and we don’t go back until we’re out.

The guilt trip

“Look at those sad eyes. How can you stand to eat him?” “Don’t your kids cry?” These are things we hear from people. At first, we did feel a twinge of guilt. Then I realized that if we hadn’t bought the calves, they

would have been used as veal. We name them, we take good care of them, and then they fulfill their purpose in life. It may seem harsh, but if people weren’t eating beef, there wouldn’t be many cattle around. They don’t make great house pets.

Just in case I feel the empty-stall syndrome, I buy my new baby calf a few days before the older one leaves. By the time he goes, he is big, smelly, and rough, and I’m ready for him to leave.

Food for thought

Self sufficiency aside, there are other advantages to raising our own beef. We found that beef is beef, no matter what the size or breed. In fact, the smaller size is an advantage—one steer provides enough beef for our family for one year. We don’t have an extra side of beef that we must sell.

More benefits: Our beef was fed with no drugs or steroids. He was not pasture fed, then finished with corn, as is commercial beef. From the beginning, he was only free-fed corn, which resulted in a faster growth rate. That in turn allowed us to butcher at an earlier age, resulting in the most tender beef we have ever tasted.

One word of warning: You might be tempted to invite friends to dinner to show off your delicious bounty. If you do, be prepared for a lot of unexpected dinner guests. Home-grown beef is just too tempting to resist. Δ

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Try these organic controls for garden pests

By Tom R. Kovach

More and more gardeners are using organic methods to control garden pests. This is because insecticides, fungicides, and herbicides can do more harm than good.

For controlling **spider mites**, **strong water sprays** from the garden hose will do the trick. Put a nozzle on the hose and spray every few days. This will work on your evergreens, which are often beset by mites in hot, dry weather. It will also work for roses and a number of other shrubs and plants.

There are a number of ways to control **slugs**. You can just **pick them and drop them into a can of soapy water**. A good time to accomplish this is **after dark** with a flashlight. That's when they're out. **Beer** also works. Just sink some saucers of beer into the earth. When they fill up with drowned slugs, renew the beer. Also, you can scatter **ashes** around plants, a few inches from the stems. This works well for tomato plants. Do it early in the season, and when the band of ashes gets too smooth, scatter more ashes. This also discourages **root maggots**.

Here is an old U.S. government list with some homemade concoctions for controlling garden pests organically:

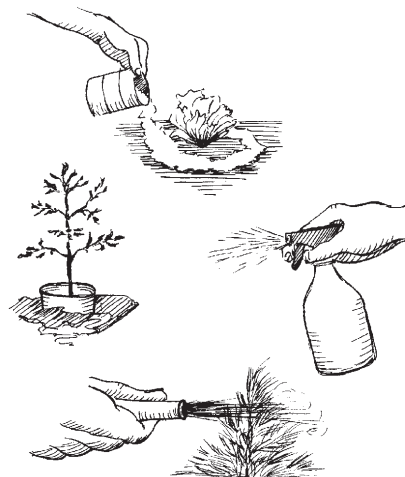
For **aphids and mites**, use a **spray made of soap and water**.

Use **garlic oil spray** to fight **onion flies, aphids and thrips**. Onion and chive solutions can also be used.

Mineral oil applied to corn silk with an eye dropper eliminates **corn earworms**. Wait until silks have turned brown before applying.

You can kill **slugs and snails** by sprinkling them with **table salt**.

For **cabbage maggots**, use **hot pepper, salt, and sour milk sprays**.



Coriander and anise oil emulsifiers help control **mites and aphids**.

Sticky bands around tree trunks will trap **tent caterpillars** and keep **cankerworms** from crawling onto the leaves of the plant.

To keep **leafhoppers** away, encase your plants in **cheese cloth or muslin** frames.

Cut short **cutworms** by placing **paper or tin can collars** around plant stems and forcing them firmly into the soil.

Aluminum foil strips placed between rows will keep **insects** out of your vegetable gardens.

Remove and burn affected plant parts to keep an insect infestation from spreading.

If a lily plant suddenly turns brown, you should **immediately remove it** from your flower bed. The browning is a sign of root rot or other diseases that can easily spread to your other lilies.

To keep **aphids** away from your roses, place a **garlic clove** on the ground next to the rose.

Some of these methods work better than others. It just takes a little experimentation. But it beats having to use chemical means of control. Δ

A BHM Writer's Profile: Olivia Miller



Olivia Miller is proud to be from rural Alabama and, as a freelance writer, enjoys writing for agricultural publications. She's published in *Horse Women*, *Progressive Farmer*, *Successful Farming*, *Turkey Call*, *Forest Farmer*, and *Catfish Pond Harvest* to name a few. Olivia is an adjunct professor at the University of Memphis, and is married with three children.

A BHM Writer's Profile: Darlene Polachic



Darlene Polachic is a freelance writer from Saskatoon, Saskatchewan. Besides writing, she enjoys gardening and needlework.

Stop bugs Nature's way

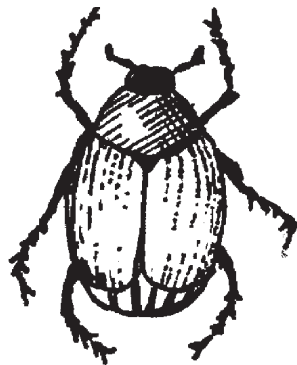
By Maurcia DeLean

First it hit the green beans. Next the carrots, and before long even the lettuce and beets showed signs of an insect invasion. On quiet evenings I was sure I could hear the munching sounds of bugs feasting on my garden.

That's what *almost* sent me scurrying to the local garden supply shop for a load of insecticide. But I didn't. And you don't have to either—if you opt to follow the advice of old-time bug-proofers.

Yesterday's farmers didn't use poison to stop bugs. They didn't have any. Instead, they saved their crops from becoming the "salad de jour" to the local insect population by giving Nature a helping hand at building its own resistance.

Before beginning any type of pest control, it's a good idea to check to see if the insects eating your plantings are still around. Most are hit and run eaters, doing most of their damage before pupating. To check for lingering pests, look at the leaves on your plants. Are the new leaves undamaged? Or are the chewed edges brown and dry? Chances are the insects you most have to worry about are gone. If, however, the leaves have fresh cuts, excreting sap, your garden is still at risk.

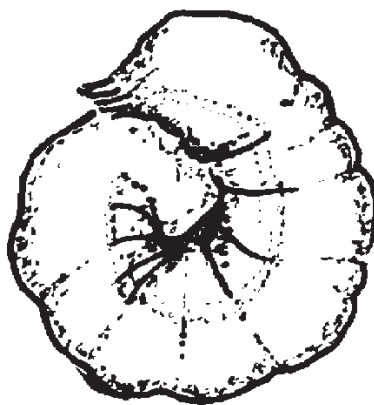


Japanese beetle

There are several safe, practical, and inexpensive ways to stop bugs from ruining your garden splendor.

Prevention

The first, of course, is prevention. Something as easy as **cultivating the soil prior to planting** in early spring exposes burrowed eggs and larvae to the local birds, cutting down on the season's insects. **Scraping trees of**

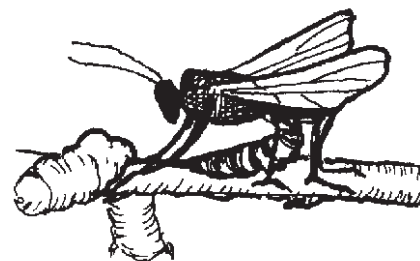


Cutworm

egg masses, too, can help leave your garden insect-free.

Beneficial insects

If, however, you need help curbing a current problem, you may need to encourage natural resistance by attracting beneficial insects to your garden. **Predators and parasites** are



Predatory wasp

good for controlling the insect population in gardens, because they feast on other insects, not your plants.

For example, to control **aphids**, **gypsy moths**, **mealybugs**, and **Mexican bean beetles**, introduce a **parasitic wasp** to your garden.

Spined soldier bugs get rid of **Colorado potato beetles**, while **mites** handle **fungus gnats** quite well.

Beneficial bugs can be purchased at garden stores or through a number of catalogs.

Companion planting

Companion planting, too, can help to stave off an insect invasion. For a list of companion plants, see the box in this article.

Barriers

Using barriers to protect your plants is simple and effective. **Floating covers** are lengths of synthetic fabric draped over the top of your plants. They offer excellent protection for young seedlings.

Top five garden pests

Pest	Host
Aphids	Fruits, vegetables, flowers
Caterpillars	Fruits, vegetables, shade trees
Colorado potato beetle	Potatoes, tomatoes, eggplant
Cutworms	Early seedlings
Japanese beetle	Small fruit, vegetables

Companion planting

helps control the insect population by attracting predators

Companion plant	Where to grow	Controls
Dandelion	Border	Potato beetles
Catnip	Border	Aphids, fleas, beetles
Marigolds	Interplant	Root nematodes, aphids, beetles
Southernwood	Border	Moths, beetles
White clover	Interplant	Cabbage root flies

Collars protect against most species of **cutworm**, but not climbing ones. Cutworm collars are stiff cardboard or plastic cylinders that encircle the plant stems at ground level.

To get rid of **gypsy moths** and non-flying bugs, try **tree bands**. These barriers are placed around the trunks of trees to prevent bugs from climbing and attaching their larvae to the trunk.

As you can see, there are a number of barriers and traps available to keep

insects at bay. Check your local gardening supplier to find the method best for you.

Organic sprays

If it's a fast and effective cure you seek to thwart bugs, try one or more of the following homemade organic recipes to chase away even the hungriest chewers:

- **Hot pepper spray:** Mix $\frac{1}{2}$ cup ground hot pepper with 2 cups water. Strain and spray on plants.

- **Garlic oil:** Finely chop 15 cloves of garlic. Soak in one pint of mineral oil for 24 hours. Use as a spray.

- **Buttermilk/wheat flour mix:** Mix one pound of wheat flour and $\frac{1}{2}$ pt. of buttermilk, add six gallons of water. Spray.

- **Molasses mixture:** To kill just about anything, spray molasses, diluted in 50 parts water, on your plants.

Since more than four out of every five species in the animal kingdom are insects, it's no wonder we gardeners feel outnumbered at times . . . we are! But that doesn't mean we have to resort to using insecticides that poison our plants along with the bugs. Try out some of these old fashioned remedies instead. And enjoy a bug-free season. Δ



Combat aphids by *planting* garlic

By Barbara Fallick

Garlic is extolled for many virtues, but many people find the odor repulsive. Aphids also find garlic repulsive—and that's good.

Every spring, my cherry trees become infested with aphids. Leaves curl up and are dotted with the black aphid bodies. The leaves are sticky to the touch. Garlic is a simple and thorough remedy to this problem.

Purchase ordinary garlic bulbs from the grocery store. I plant mine in the fall with my other bulbs. *Organic Plant Protection* by Rodale

Press says to plant them early in the spring. Evidently, either time will work. Split the garlic bulb into cloves and plant each clove individually around the base of the tree about five inches from the base and five inches from each other. Plant them approximately two inches deep.

The garlic plant itself does not give off an odor, nor does it affect the flavor of the fruit. In my climate of hard winters, my garlic plants do not reproduce themselves the following year, so I have to replant every year. In some climates, they will repro-

duce every year. Home-grown garlic has a better-mannered taste than the store variety, and is therefore a boon to medicinal and culinary uses.

Though garlic is the most potent, other plants which also work as aphid repellents are chives and other alliums, pennyroyal, spearmint, southernwood, tansy, coriander, anise, nasturtium, and petunia.

Now, can anyone tell me what to do about the white worms that get into the cherries? My trees are very tall, and even organic spraying is not a viable option. Δ

From humble stew to curried root soup, root vegetables are an overlooked delight

By Richard Blunt

A few days before Christmas my mother called wanting to know what time I planned to pick her up Christmas day. I reminded her that I planned to pick her up Christmas eve. Then she asked me what we were having for Christmas dinner and I recited the menu. She said, “That sounds delicious, but aren’t you forgetting something?”

Up to this point I’d been happy with the menu, but her question made me hesitate. I read the list again. “I don’t think so.”

“You forgot the root vegetables,” she said. “Richard, Christmas dinner is a special meal. Even though you and I were not rich, we always ate well during the holidays because of the wonderful fresh turnips, parsnips, rutabagas, Jerusalem artichokes, and other root vegetables the neighbors shared with us from their gardens every winter. When you got married I gave you copies of your favorite winter vegetable recipes. Why don’t you pick one of those. It doesn’t matter which one. They’re all good.”

I told her that it sounded great to me, and after we hung up I started digging through my files for the recipes. After an hour, I found an old dusty manila envelope with the following note hand written on the front. “These recipes were given to me by your grandmother when I got married. You and I have enjoyed the magic of these recipes for many years. I hope that you will share with your new wife the tradition of simple but elegant foods that have been so much a part of our family tradition. Love, Mom.”

I opened the envelope and found recipes with names that I had completely forgotten about: Yankee pork and roots, maple baked rutabaga, southern yam pie, curried root soup, Jerusalem artichoke bisque, and humble stew. It rekindled memories of tastes and textures almost forgotten. All of these recipes called for a variety of vegetables that thrive in cool moist climates of the Northeast where I grew up.

After reading a few, I got excited. I sat at my kitchen table and felt a funny kind of enthusiasm as I drew up a shopping list. My daughter, Sarah, was also getting excited as she watched me, even though she didn’t know what was going on.

“Come on,” I said when I’d finished my list. She followed me out to the car and we headed for the best local farm stand in the Farmington Valley, “Pickin’ Patch,” where I assumed everything I needed would be on the shelf. In the back of my mind, however, I was a little worried that the holiday shopping rush would have depleted the supplies



before I got there, so on our way I stopped off at a couple of supermarkets just to see what they had.

It was to my surprise and disappointment that all I found in these stores were some waxed rutabagas, a few withered bunches of red beets, and some parsnips that had not been cold-stored properly so they had a flat, starchy taste.

I guess this shouldn’t have been a surprise because most would-be fresh vegetables available in the northeastern markets during the winter months are the globe-trotting, ethylene-stimulated varieties that are the product of someone else’s summer. We eat tomatoes from Mexico that are picked green and never really ripen, storage grapes from South America that fall off the stem when you pick them up, and deep red strawberries from New Zealand that have more color than taste but are a temptation to any shopper. And I will admit that I, like most other people, am not willing to go without lemons, oranges, melons, and bananas at any time of year, so I purchase this ersatz-ripened fruit myself.

Still, in spite of all these techno-ripened fruits and vegetables, there are some vegetables, grown right here in the Northeast, that we ignore. They are vegetables that ripen in summer but improve in flavor and texture with proper storage, making them worth serving in winter. Irish potatoes, sweet potatoes, onions, and winter squash are good examples.

I had high hopes that I would find some of these at the Pickin' Patch. But, when I finally arrived there, my disappointment deepened. I found no root vegetables at all. Sarah sensed my mood and the excitement faded from her face. I asked the owners if and when they would be restocking. They told me most root vegetables don't sell, so they stopped planting them several years ago.

Then I went to see Randy Morse, a respected farmer who operates a popular farm stand in Southbridge, Massachusetts. I asked him why many root vegetables were so hard to find. What Randy said went something like this:

Many folks think of root vegetables such as salsify, Jerusalem artichokes, celeriac (or celery root), and parsnips as cheap produce. Growing vegetables for cold weather harvest takes skill, patience, and a lot more land than the finished crop can support with sales. Plus, cold weather harvesting is hard, dirty work.

Don't get me wrong, buying vegetables that are grown and harvested locally is the most economical and nutritionally sound way to go. But that kind of quality will never be available at bargain basement prices. Popular, high yield vegetables like sweet corn, squash, and pumpkins offer the local consumer reduced prices because local farmers sell a lot of these crops.

Most of my customers are only familiar with the well known root vegetables like carrots, potatoes, and onions. So that's what we stock. It's a shame, but I would have a hard time convincing many of my customers that a parsnip exposed to a moderate frost is as sweet and tasty as a young early summer carrot, and it's a more versatile vegetable in the kitchen.

Good words, Randy. I agree.

I had to travel all the way up to the wholesale market in Haymarket Square, outside historic Faniel Hall in Boston, to find what I wanted. So given all the trouble I went to, let's put them to use and try a few root vegetable recipes.

The first recipe produces one of my favorite flavor and texture combinations. It combines a broad spectrum of balanced vegetable flavors in a mixture that requires very little herb or spice enhancement. To enhance this mixture too much would mask the delicate flavor balance of the vegetables. This version does not contain any meat, but I have used this vegetable mix as a base and added lamb, pork, or beef and a little more stock to make a real appetite pleasing

winter stew. Serve any version of this stew with fresh corn bread or hot biscuits.

Humble stew

Ingredients

1 cup dried red beans
6 cups plus 8 cups of cold water
3 cups fresh beef, chicken, or vegetable stock
1/2 cup dry red wine
8 Tbsp margarine or butter (I prefer butter in this recipe)
8 oz onion, peeled and diced medium
4 oz celeriac, coarsely grated
4 cloves fresh garlic, peeled and minced
4 Tbsp flour
4 medium carrots, peeled and cut into 1/2 inch pieces
4 small to medium fresh beets (without greens), peeled and cut into 1/2 inch chunks
1/2 lb peeled rutabaga cut into 1/2 inch pieces
4 medium parsnips, peeled and cut into 1/2 inch pieces
1 tsp dried basil leaf
1/2 tsp dried oregano leaf
kosher salt to taste
freshly ground black pepper to taste
1/4 tsp cayenne pepper (more or less according to taste)
2 cups canned whole plum tomatoes (with the juice), diced medium

Method

1. Soak the beans in the six cups of cold water for at least four hours. Drain and rinse beans, discarding the soaking water. In a large sauce pot combine the beans with eight cups of fresh water and bring to a boil. Reduce the heat and allow the beans to cook slowly for about 45 minutes. Rinse the partially cooked beans in cold water to cool, drain and set aside.

2. Combine the stock with the wine and heat almost to the boiling point over a medium heat.

3. Melt the butter in a large sauce pot, and add the onion, celeriac, and garlic and saute them for about two minutes or until the onion becomes translucent. Stir in the flour and continue cooking the mixture over a low heat for another two minutes. Add the hot stock to this roux while stirring with a wire whisk. Cook over a medium heat until the sauce thickens.

4. Add the remaining vegetables, beans, basil, oregano, salt, black pepper, cayenne pepper, and plum tomatoes. If you have a large earthenware casserole, transfer the vegetables into the casserole, cover and place in a 350 degree oven for 45 minutes to an hour. Or simply cover the sauce pot, reduce the heat to low, and cook the vegetables on top of the stove about 45 minutes, or until everything is tender.

If you want to experience a great one dish meal, cook some of your favorite rice or noodles and serve these vegetables on top with some grated cheese.

Curried root soup

This is a real departure from the delicate pureed soups that are usually made with root vegetable combinations. It has a full taste, rounded off with a slight tingling nip from the addition of several spices that make up a mild but noticeable curry mixture. This is also a soup that improves in flavor when allowed to rest in the refrigerator overnight.

Ingredients

3 medium beets (separate the greens and save), peeled and diced medium
1 lb carrots, peeled and diced medium
8 oz parsnip, peeled and diced medium
1 lb rutabaga, peeled and diced medium
8 oz russet boiling potatoes, peeled and diced medium
4 medium leeks (white part only)
2 qts fresh vegetable, chicken, or beef stock (if you don't have fresh stock, low salt canned stock can be substituted)
5 Tbsp unsalted butter
2 cloves fresh garlic, minced
1/4 tsp ground cumin
1/4 tsp cayenne pepper
1/8 tsp ground ginger
1/8 tsp mustard powder
1 pinch turmeric
1/4 tsp powdered coriander
2 Tbsp flour
2 Tbsp fresh lemon juice
reserved beet greens, chopped
Add kosher salt and fresh ground black pepper to adjust seasoning.

Topping ingredients

1 medium onion, peeled and chopped fine
1/4 cup flat leaf parsley, chopped fine
2 cups plain yogurt

Method

1. Separate the greens from the beets, wash, drain, and chop the greens and set them aside
2. Slice leeks in half lengthwise and dice into 1/2 inch pieces.
3. Combine the vegetables with the stock in a large pot and bring to a boil. Reduce the heat and cook until all the vegetables are just tender. Remove them from the heat and strain the stock into another container. Set the stock and half of the cooked vegetables aside.

4. Puree the other half of the vegetables in a blender or food processor and set these aside.

5. Melt the butter in a large heavy bottom pot, add the garlic and saute over a medium heat for about one minute. Now, add the spices and flour while stirring with a wire whisk. Cook this seasoned roux over low heat, to prevent browning, for about two minutes.

6. Slowly add the stock to the roux while stirring with a wire whisk to prevent lumps from forming. Heat this mixture to a slow boil while stirring constantly. Cook over a low heat until the stock shows signs of thickening, then add the chopped beet greens, lemon juice, and diced vegetables. Continue to cook for about 10 minutes or until the greens become tender.

7. Remove the soup from the heat and add the pureed vegetables, stirring gently with a wooden spoon to mix.

8. Adjust the seasoning with kosher salt and fresh ground black pepper to suit your taste.

To serve, combine the chopped onion and parsley in a serving bowl and the yogurt in another bowl and bring them to the table as condiments. Heat the soup to a serving temperature 165-175 degrees. *Do not boil again.* Sprinkle a little parsley and onion on each serving along with a dollop of yogurt.

Cajun baked turnip

My mother was a master at creating recipes for turnip and rutabaga. Of all the root vegetables in the world these are the two that give me taste fatigue the quickest. So my mom would do her best to keep me from groaning every time I saw these two vegetables come to the table. Not all of her creations did the job, but I will share with you one of those monotony breakers that is still one of my favorites.

Ingredients

2 lbs white turnip, peeled and diced
6 Tbsp unsalted butter
1/4 cup red bell pepper, diced medium
1 tsp whole grain mustard
2 Tbsp brown sugar
1/2 tsp kosher salt
1/4 tsp garlic powder
1/8 tsp ground nutmeg
1/8 tsp cayenne pepper
1/4 tsp dried thyme leaf
1/4 tsp dried basil leaf
1/4 cup distilled apple cider
1/4 cup whole wheat bread crumbs

Method

1. Wash and peel the turnips and dice them into 1/3 inch pieces.

2. Cook the turnip pieces in lightly salted water until just tender. Drain and set aside.

3. Melt the butter in a heavy bottom skillet, add the diced bell pepper, and saute until the pepper is tender.

4. Combine the mustard, brown sugar, salt, garlic powder, nutmeg, cayenne pepper, thyme and basil with the apple cider and blend with a fork. Add this mixture to the sautéed bell pepper.

5. Toss this mixture with the blanched turnip in a suitable oven casserole. Sprinkle the whole wheat bread crumbs on top and bake in a 375 degree oven for about 20 minutes, or until the top is lightly browned and the turnip is to a desired tenderness.

Jerusalem artichokes with brown rice

The Jerusalem artichoke is not the most eye appealing vegetable, which is probably why most retail markets don't carry it. It also requires special handling once it is removed from the ground. It has a very short shelf life.

In spite of its short comings, this vegetable is an absolute delight to eat in many ways. If you decide to grow some, you will experience a culinary delight similar to picking a fresh ripe tomato or ear of corn from your garden and eating it on the spot. Taste doesn't get any better.

If you can find some Jerusalem artichokes that are fresh, don't bother peeling them. Just wash them with a stiff brush and work them into this recipe.

Ingredients

4 Tbsp extra virgin olive oil
1 medium carrot, peeled and diced small
1 small red onion, peeled and diced small
1/4 cup fresh mushrooms, diced
2 cloves garlic, minced fine
3 cups Jerusalem artichokes, scrubbed and diced medium
1/4 cup long grain brown rice
1/2 cup fresh chicken stock
1 Tbsp lemon juice
1 Tbsp fresh mint, diced fine
kosher salt and fresh ground black pepper to taste

Method

1. Heat the oil in a large skillet. Add the carrots, onion, mushrooms, and garlic and saute for about 5 minutes. Add the Jerusalem artichokes and continue to saute until the artichokes are just tender.

2. In a suitable oven casserole combine the vegetable mixture with the rice, chicken stock, lemon juice, and mint. Add kosher salt and fresh ground pepper to taste. Cover the casserole and bake in a preheated 350 degree oven for about 20 minutes, or until the rice is tender

Sweet potato salad

Here is another taste lifter that helps to give new life to a vegetable that can get boring when just served cooked. Raw sweet potatoes and yams are great mediums for strong and flavorful sauces. I like a variety of spicy vinaigrette dressings.

Ingredients

1 cup grated raw sweet potato or yam
2 cups diced apple
1/4 cup celeriac (diced)
1/2 cup broken walnuts
1/4 cup seedless raisins
1/4 cup dried apricot diced
your favorite lettuce

1. Combine the grated sweet potato, apple and celeriac. Add the walnuts, raisins, and the diced apricots and toss gently to mix.

2. Chop the lettuce and arrange it on a platter with the sweet potato salad on top of the lettuce.

Here is one of my favorite dressings for this salad.

Walnut vinaigrette

Ingredients

1/4 cup extra virgin olive oil
1/2 cup walnut oil
1/4 cup of your favorite herbed vinegar
1 Tbsp apple brandy
kosher salt and fresh ground black pepper to taste

Method

1. Whisk the oils, vinegar, and brandy together and season to taste with salt and pepper. Refrigerate for 1 hour before using.

I hope you readers will try some of these neglected root vegetables and maybe even make room for some of them in your garden this spring. See you next time. Δ

Shadows

Tending my garden in the last hour of evening
I stop to rest
and see against the rays of setting sun
shadow figures from the past.
Indians who once tilled this soil work beside me;
hoeing only the corn, the squash and beans
they leave the rest to me.

Wilma Hinman
McCune, Kansas

Be a purple martin landlord — and find lots of uses for gourds

By Edna C. Norrell

The purple martin is one of nature's marvels, one of the most amazingly acrobatic birds on wings. Late afternoon, just about sunset, they put on a show that will leave you wishing you had wings. They drift, seemingly effortlessly, glide on a breeze, rise till they are no more than specks against the sky, fold their wings and zoom unerringly to their gourd home. I have yet to see a squabble due to mistaken entry.

Besides being fantastic entertainers, martins have a practical use: they eat nothing but flying insects, their favorite being mosquitoes. Since they can be found in all the lower 48 states and Canada, you can have purple martins as tenants no matter where you live.

We have offered them all kinds of dwellings, from single bird houses to high-rises, and we find they prefer earthy bottle gourds to the more expensive homes. Gourds are low cost and can be found easily at flea markets, yard sales, and farm stands. Or if you have a plot of dirt, grow your own. The gourds need at least 150 growing days; the longer the gourd stays on the vine, the thicker the shell will be. For your martin colony, choose gourds whose shells are at least ¼" inch thick and 8" to 12" in diameter.

When the gourds are dry enough that the seeds rattle, cut a two-inch doorway about halfway up the side of the gourd. Scrape out the seeds and membrane. Long tongs are handy for this. Drill three holes in the bottom for drainage. Drill two holes in the neck, 2" down from top, and thread through a piece of clothes hanger or baling wire to hang the gourd by. Paint the

gourds white; this makes them more attractive to the renters and keeps the inside cool on sweltering days.

For one colony you will need

- 24 prepared gourds
- a 4" cedar or pressure treated pole 15 ft. long
- 8 runners (1x1 cross pieces, 4 of them 3 ft. long and 4 of them 4 ft. long)

For the tilting design, add

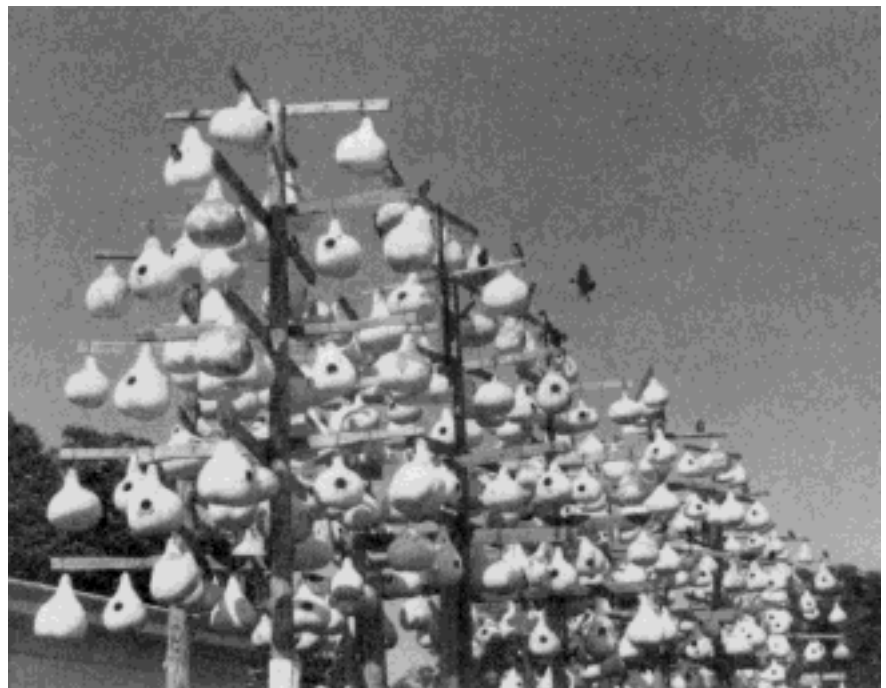
- two pressure-treated 2x4s
- 2 machine bolts ½" in diameter and 8" long with
- 6 washers and
- two nuts

Sink the cedar pole upright at least three feet deep. If you wish, you can

anchor it in cement. At the top of the pole, nail two of the shorter cross-pieces at right angles to each other, using two nails per crosspiece to prevent tipping. Hang a gourd on each end of each runner. To keep the gourds from sliding off, hammer in a nail 3" from the end of each runner.

Nail the second pair of crosspieces directly under the first, hanging the gourds as above. In similar fashion, use the longer crosspieces to make the third and fourth tiers. Hang two gourds from each side of the longer runners. This results in an attractive pyramid-shaped gourd structure.

Some landlords feel the need to lower the pole periodically to check the nests and to clean them out when the birds have flown. If this is your desire, build a base for the pole that allows you to tilt it down. Sink two 6 ft. lengths of pressure treated 2x4 lumber on end 2½ ft. into the ground, preferably in concrete. The 2x4s should be parallel, the space between them ¼" greater than the pole diameter. To hold the pole in place with



The author's 300-unit purple martin apartment complex

machine bolts, drill a set of ½" holes 6" from the top of the 2x4s, and drill a second set one foot from the soil level. Drill corresponding holes through the pole. Mount the pole with two machine bolts, placing washers on each side of the pole and at the end of each bolt before threading on nuts. The top bolt will serve as a hinge when you remove the bottom bolt to tilt the pole down to clean out the gourds or replace broken ones.

We have never used the base described above; it comes from an expert in the field of purple martins. We leave the gourds as the martins leave them when they leave for their migration to South America in the fall. We never clean them out, either: we think the birds like to find their homes just as they left them, straw and all. When the homes need a new coat of paint, we use ladders to climb the poles for the job. Should one become too old to be sturdy in a wind storm, we replace it. Otherwise, we leave them alone.

The martins start gathering in late July or the middle of August, and take off on the first leg of their long journey. They make stopovers in Florida and south Alabama for a few weeks' rest and food stock-up, then they're off across the long stretch of water to their winter quarters. In February and March, the first scouts come back. On their heels is the flock, chattering as they come back to the same gourds they left last summer. How they do this is beyond understanding.

Useful gourds

Gourds are useful for many things besides purple martin homes. They are great for crafts that are fun for everybody from the wee ones to Great Grandma. They can be found in all sizes from the huge bushel basket to the tiny nest egg, with all lengths and shapes of necks. No matter what you have in mind to make, you are sure to find a gourd just right for your project.

They are easy to find too, at flea markets, fairs, yard sales, and on the farm where they are grown. Should you want to grow your own, plant them in mounds some ten feet apart each way, as the vines are great runners and make half a dozen to twenty gourds to a vine. Allow them to stay on the vine until the vine is dead and the gourds are dry. If you pull them when they are green, they are certain to rot.

When dry, the gourds can be cut and sawed easily. If you are buying your gourds, look for ones with thick shells and ones that don't mash in when pressed on the sides. In making objects like vases and holders for tooth brushes, crayons, pencils, and pens, cut off the tops or handles about halfway down. With long tongs, pull out the dry membrane and seeds, then wash the gourd and allow it to dry thoroughly before sanding and painting or shellacking. To make faces, do not cut the gourd, just sand it and it's ready for decorating.

Native American vases and bowls are popular and easy to make. For a vase, cut the neck off down to the body of the gourd or about halfway down. Paint earth colors, deep brick red, tans, or browns. You can make designs by cutting paper in shapes like rectangles, squares, or circles. Trace these on the gourd, outline in black and shellac all over. Beautiful! Vines, flowers, and mountain streams cut from magazines make wonderful decorations. Glue them right on the gourd and shellac all over. Just use your imagination in this, and you will have a masterpiece in no time!

Faces are the most fun to do. I have seen some gourd faces that actually resembled people I knew! Grandpa and Grandma, the old fashioned kind, are great to make. Grandpa needs a small or short nose, a gray yarn mustache, and a fringe of gray hair topped by a straw hat. Bore a hole beneath the mustache and poke in the stem of a corn cob pipe.

Grandma has gray hair, spectacles, and a sunbonnet. Glue on eyes made of black buttons or felt.

Santa Claus has a long white beard of yarn or long fiber cotton for his beard and hair, glued on beneath his red cap. Mrs. Claus wears her spectacles and her hair in a bun atop her head.

Choose a gourd with a long slender handle for Ichabod Crane or Pinocchio. Ichabod sports a black hat and Pinocchio a white one with a black band, both glued to the head side of the gourd.

Remember all these characters are using the handles of the gourds for their noses, so hats, hair, etc. are glued to the side of the gourd.

Look for a penguin-shaped gourd, paint on a black tuxedo, white shirt, and black bow tie. An artificial carrot end will make a great beak, or you might want to paint on a mouth with a small hole drilled for his pipe or plastic cigarette. A black top hat completes his costume.

Back on the farm, few farmers were without a long handled dipper gourd. Nowadays these make wonderful conversation pieces when entwined with vines, flowers, and a tiny bird perched in the doorway and hung on the wall of your kitchen or dining room.

All these crafts, from the decorated waste basket to the penguin, make great gifts or yard sale items. They will win prizes at fairs, or it's fun just to keep them. Just go out and get the gourds and let your imagination go. You will have fun and keepsakes too! This activity will keep kids busy for hours, using water colors and Elmer's glue. Grandma can present Grandpa with a good likeness of himself. Altogether, it is a great project and so much fun to do. Δ

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It's springtime in Montana

By Dynah Geissal

The dawn comes gray and foggy, with a breeze . . . warm for March, but chilly still. The eastern sky is bright where the sun will top Mount Sentinel in another half hour. Only a few patches of snow remain, although the nearby mountains are bare for only the lower hundred feet.

The redwing blackbirds came back during a warm spell in January, but disappeared when a blizzard and 30-below temperatures followed right on their heels. Now, in the first week of spring, they're back in full force. There is a pair above the bedroom window. They seem to be competing with the red rooster who is displaying his prowess to the adolescent chickens in the brooder pen by the house.

Sleep tugs at me but no, it's time to start the day. I heard the first curlew last night. The pintail with the broken wing is back. She stayed all through the fall until the creek froze. I thought she had died, but now with the water moving again, she's back. She walks in the solemn line of domestic ducks, even though she can fly now. She's only a quarter their size.

The meadowlarks are mating, and their songs brighten the morning. The whole elm tree is alive with redwings. They like the cattails, but there won't be any for a couple of months yet. The great horned owl that lived in the barn all winter has moved to her nesting tree by the river. It's a huge old ponderosa, and the nest is way up in a hollow with a convenient dead branch for a perch. I like to examine the pellets underneath to see what she's been eating. Mostly it's mice but sometimes birds, and I've found many snail shells in the pellets. I think they must have been eaten by something that was then eaten by the owl. I saw her



mate in the hills above my house several times this winter, but I never could find where he lived. He hunted rabbits in a copse of trees up there and seemed unafraid when I approached.

I've noticed before that animals react differently to a person on snowshoes. There's a herd of deer that regularly graze with the cattle, and even though they come quite close to the house, they will never tolerate my approach. One day, though, I passed them when I was snowshoeing. They showed curiosity but not fear and they went on grazing as I moved away.

There's a female coyote that comes every year in late winter to catch voles. For a couple of months she will come every day. I think she must be feeding a litter to be so brazen. She moves among the cattle with their newborn calves but never threatens them, and they seem unconcerned—except once when the calves gathered around the coyote in curiosity. The mothers moved in on a run and the coyote moved off a ways.

One time I was snowshoeing and I saw the coyote. She was upwind of me and moving toward me. She had to have seen me, but she kept coming without any hesitation until we were only about a hundred feet apart. She suddenly leaped into the air in surprise and trotted off; I guess she had finally caught my scent.

I heard the swans flying over. When I was doing the milking, I heard a group that was so high that I couldn't

see them, but there's no mistaking that sound. Later, when I was feeding the horses, I heard the sound again, and this time I could see them as little more than pinpoints against the clouds. There used to be a hundred or more that stopped on the creek for a month or so before going on to the Arctic. A gas spill in '82 put an end to that. The oil company assured me that the creek had returned to normal a year later, but the fish are only starting to come back, and I don't think the swans ever will.

Spring in Montana—not much snow in the valley, not much green for a couple more months, but the sap's running, the rough-legged hawks are soaring and whistling in pairs, along with the redtails and the marsh hawks. To some people it may look bleak, but if they looked closely, they'd be amazed at all the stirrings of life.

I raked off the flower beds, but they were still embedded in ice under the mulch. I dug up the coldframe, but four inches down, the earth was solidly frozen. The carrots are still crisp and sweet in the garden under their bags of leaves. The dirt I brought in to start plants sprouted hundreds of hollyhocks as soon as the soil warmed. Everything is on the verge. Just a little longer. I tell myself to be patient and to enjoy this period of anticipation. Soon it will be warm and we will be trying to cram everything we can into our short summer. Δ

You definitely want to grow your own asparagus

By Anne Westbrook Dominick

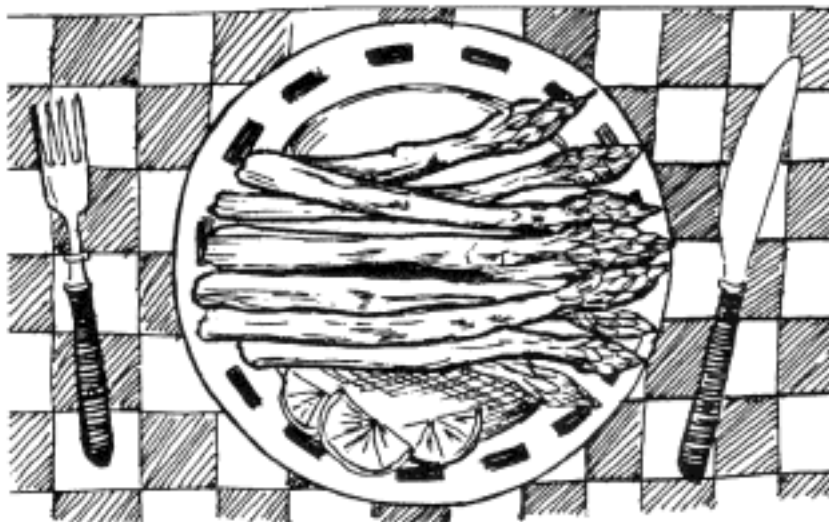
Just like the sugars in corn and peas, the sugars in asparagus start the starch conversion as soon as it's harvested. The bottom line: you can't buy asparagus that tastes as good as what you raise and harvest yourself. A perennial of long duration (we're talking decades here, even centuries), a good growing asparagus bed requires a busy start-up to get it well established. But if you like store-bought spears even a bit, a dish of fresh cut ones will make a dedicated "bedder" out of you.

That's what asparagus needs, a bed in full sun out of roto-tilling areas. Some people, like my father, establish it as an adjunct to the north end of their vegetable garden; others, like me, give it its own spot in the landscape. When figuring where to put it, know that asparagus reaches five to eight feet in height, topped with dense feathery plumage that can screen out unsightlies. Song birds also enjoy it as a safe place during August and September.

Choices

Starting an asparagus patch forces even more decision making: Should I start with seeds or crowns? A *crown*, a one-year-old established root system with visible spears ready to grow, will give a few eatings the second year; seeds take till the third year. Crowns cost more and demand immediate bed preparation; seeds offer more for the dollar and can wait another year for their permanent piece of the property. I've done it both ways. Crowns offer quick gratification; seeds offer a more relaxed project with a bit of prolonged adventure.

A second decision: what variety? The stand-by line is Washington—Mary and Martha are the best



known—and for good reason. Asparagus' arch enemy, a fungus called *rust*, will always win if it can get a spore in the stalk. Evidenced by dusty orange blisters on the spears and foliage, it exists throughout the United States . . . but Washingtons are immune. Hybrids touting more, longer, and better yields now flood the market and confuse everybody. Many carry the Washington genes, but the catalogues selling them don't tell us which ones.

Now we can even choose all-male selections (seed or crown format) that will give us more, bigger, and better spears, since they won't be "thinking reproduction." However, some evidence indicates all-male hybrids are over-sensitive—too much cold or heat does 'em in.

I started my last patch with Martha Washington crowns nine years ago in northern New England. This year I've started another bed of Martha Washington in southern Arizona, and they're already showing their strength. I'm feeling the urge for a bit of variety, so next year I'm going to start some hybrid seeds in my perennial-seed-starting patch, enlarge Martha's

bed, and move those new companions in with her the following year.

Planting

To prepare a bed for crowns, dig a ditch eight to ten inches deep. A traditional two- to three-foot deep trench is no longer "in," so forget it (thank goodness). To figure the ditch's length, allow a foot and a half between plants. Rows should be three feet apart. Chop some compost or cured manure into the ditch's bottom and cover with a bit of soil, forming a mound for each root. To plant a crown, place the top at the peak of the mound, drape its roots uniformly into the lower areas, and cover with about two inches of dirt tucked in snugly around the roots. As spears appear, which should happen in one to two weeks, keep covering them until the trench is full.

To start asparagus by seed, plant them an inch deep at the beginning of the growing season in a place where you can keep tabs on them. For me, that was the first week in May in the northeast and the start of the rainy season (the beginning of July) in the southwestern desert. Germination can

be speeded up by soaking the seeds for a day or so before sowing. When they're up, thin to about three inches apart, keep weeds from competing, and let them grow the year away. A year later, move them to their prepared permanent bed.

The harvest

Unfortunately, asparagus can't be harvested the year its crowns are set. The second year, they can be picked for a couple weeks—enough for a couple good meals. By the third year, they should be strong enough for a full harvest lasting two to two and a half months. Should the spears become spindly (pencil thickness) before then, stop harvesting, and let them gain for next year's crop.

Asparagus is most succulent and delicious when six to eight inches tall. To harvest: right before cooking, cut the stalk at—or just below—ground level, being careful not to injure future spears. After harvesting, I get rid of the spear's tough, stringy end by tapping lightly, starting at the root end with a paring knife in half inch increments until the knife slips through. Throw away that bottom end and what's left will melt in your mouth.

Preparing for winter

To prepare for winter, mow the entire patch to the ground anytime after the first frost. Because asparagus is a heavy eater, spread a generous covering of compost or manure over them at this time. That gives the nutrients an early start leaching down to the roots for next season's robust start. Chicken manure, which is too strong for many plants, is ideal for asparagus. In areas where the soil is acidic, an annual liming is beneficial. Wood ashes are even better since they not only sweeten the soil (keep it around neutral—pH 6.5 is ideal), they also contain potassium and other important minerals. Where the soil is alkaline,

an annual dose of sulphur will keep the level where asparagus likes it best.

Asparagus can co-exist quite happily with most weeds and, being the long-term perennial it is, that's a good thing. Weeds in general and witch grass in particular are more of a problem to the gardener than to the asparagus, but these can be controlled somewhat by early shallow cultivation followed by mulching.

Salting asparagus is now unacceptable. You might say, "Well, of course," but more than a few people still do it. Recently, when I was moaning about the accursed grass takeover in my asparagus patch, a gardening friend whose advice I had always taken as gospel rather smugly told me how he controlled his: 400 pounds of salt. His patch is 20 by 40 feet. Sure, the salt will kill a lot of weeds and even give asparagus a one or two year boost. After that, not only will the asparagus go into decline, the soil will have been ruined for years to come, and some salt will have leached into surrounding areas—a very large area if it gets into the ground water. Smart people still advocate stupid things, and lesser ones, like me, do consider following their advice. This is one we shouldn't follow.

Actually, asparagus, once established, will maintain itself for years. As long as we get the plants well placed and growing strongly, we don't have to do much more than what we feel comfortable doing. Few weeds bother it. Poor soil really doesn't faze it. The best I ever ate was from a mighty poor hay field near the Canadian border in northern Maine. That bed had been abandoned when its people had moved up the hill to build a proper house over 75 years ago. Δ

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A BHM Writer's Profile: Mark and Jacqueline Tresl



Mark Tresl invents, repairs, and restores everything and anything on his 232-acre "Farmland Preserve." Jacqueline Tresl follows him around and writes articles about what he is doing since she is totally unmechanical and can offer no real help to him. Jacqueline is a freelance writer and a registered intensive care nurse. Her horse, Misha, has been featured in national magazines because she is toilet trained and lives in the Tresls' log house.

A BHM Writer's Profile: Christopher Nyerges



Since 1974, Christopher Nyerges has conducted Wild Food Outings and Survival Skills Outings, mostly in Southern California. He teaches through his School of Self-Reliance, two local colleges, and various private and public schools. Over 20,000 people have attended his classes and workshops. He has written thousands of newspaper and magazine articles. He is the author of five books: *Guide to Wild Foods*, *Enter the Forest*, *Testing Your Outdoor Survival Skills*, *Wild Green Salads*, and *Urban Wilderness*. A schedule of his outings is available from their web site at www.self-reliance.net, or from the School of Self Reliance, Box 41834, Eagle Rock, CA 90041.

The Ichiban Hybrid eggplant is a real producer

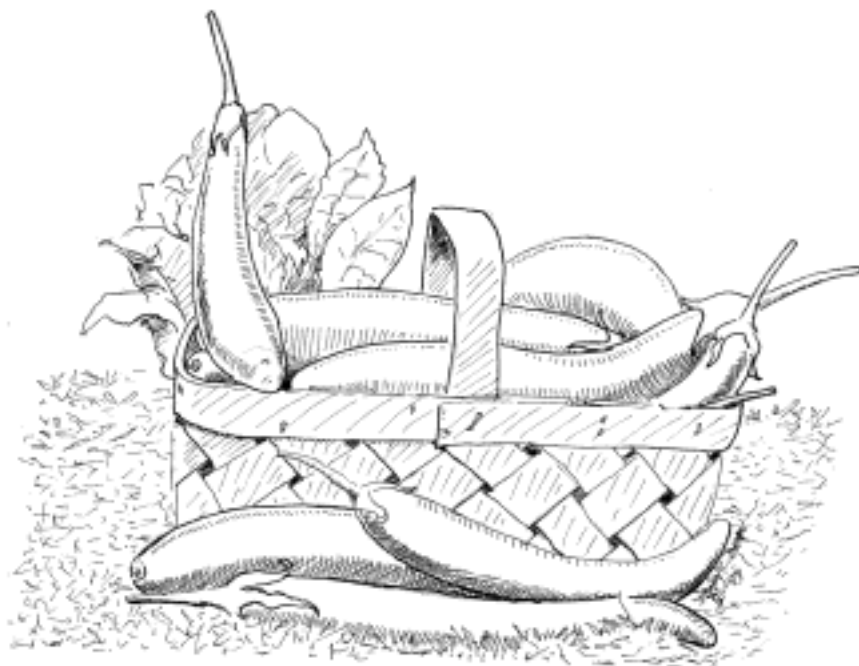
By Alice B. Yeager

Photos by James O. Yeager

Have you ever tried year after year to grow a particular type of vegetable, but it always seemed to turn out wrong? Finally you throw up your hands in disgust and question your sanity for even thinking about trying again. This used to be my track record with eggplants.

My young eggplants always looked good in their neat peat pots, giving me enough encouragement to believe that plants of such fine caliber would surely perform well in the garden. After transplanting to a well-composted spot, the plants continued to show great promise. With the help of a pest deterrent, they would survive the onslaught of flea beetles, blister beetles, and others of ill intent. What couldn't be controlled was the Arkansas summer weather with its periods of high humidity, drought, and miserable heat. However, I would manage, with the aid of mulch, water, and perseverance to actually harvest a couple of purple fruits literally worth their weight in gold, considering all the effort it took to raise them. It's times like those that can make you wonder if your mama raised a fool.

The eggplant variety Ichiban Hybrid first came to my attention some years ago while I was afflicted with the annual Hope-Springs-Eternal disease. This malady is common in winter among avid gardeners, causing them to rivet their attention on seed catalogs for days at a time. Ichiban was advertised as an oriental variety bearing huge crops of long, cylindrical fruits—unlike the plump types I had been attempting to grow. Skeptically, I thought I'd give eggplants another try, and, if Ichiban failed, that was it!



Ichiban Hybrid eggplant is prolific.

No more time-wasting attempts at growing eggplants.

Fortunately, Ichiban Hybrid measured up to its description and is now a welcome part of our garden selection each year. It has far out-produced others such as Black Beauty and Dusky (which, in my case, hasn't been too hard to do). Ichiban is very prolific, beginning its production by early summer and continuing until frost. I have yet to find an Ichiban fruit with the slightest bitter taste, regardless of its stage of maturity.

Getting started

I prefer to start eggplants indoors several weeks ahead of the last anticipated frost date in our area (Zone 8), thus giving them a head start so that they are about four to six inches tall when transplanted to the garden.

Young Ichiban plants are handsome with their velvety, grey-green leaves, and they grow off with a flourish when they are out on their own. Being tender plants, they are not transplanted until the weather has warmed and the soil has lost its chill.

Eggplants like a sunny spot, but will tolerate some partial shade. They seem to appreciate some relief from hot summer sun and will thrive alongside taller plants such as trellised cucumbers or pole beans. Six or eight plants will produce enough fruit for the average size family.

Ichiban needs a sandy loam soil with plenty of humus and good moisture retaining qualities (but not boggy). Well-rotted barnyard manure or rich compost dug into the ground a few weeks in advance of planting will boost production. Eggplants require soil with a pH factor of 6.0 to 7.0, so

they fit in very easily with the soil needs of many other home garden vegetables.

Young plants should be spaced about two feet apart. I like to apply a mulch of organic material—pine needles, leaves, etc.—to cut down on grass and weed growth. Also, the mulch will attract earthworms to do the chore of cultivation. (Why do all that work when there are eager and meticulous tillers willing to work for nothing but good living conditions.) Adding to the mulch from time to time helps in other ways, too, as it keeps plants and fruit from getting dirt-splashed during heavy rains and prevents soil from being washed away from the roots.

They grow tall

Ichiban plants grow tall in our garden and require staking. Usually, a four-foot stake driven solidly into the ground at the time of planting is sufficient, and it is needed if plants are to remain upright while laden with fruit. Strips of old nylon pantyhose come in handy for use as ties, as they do not restrict the circulatory system of the plants. Tomato cages work well, too. Place them over the young transplants and they will grow up through the cages, supporting themselves as they grow.

During prolonged periods of drought, even mulch won't take the place of needed water. Eggplants must have a moderate amount of moisture to produce their fruit properly. When leaves continue to droop after sunset, it's time to give the ground a good soaking. During extended hot, dry periods I sometimes water every two to three days to ensure survival of the plants. Given adequate attention, Ichiban will do you proud all summer long.

In southwestern Arkansas, our worst eggplant enemy is the flea beetle—that small black pest that eats tiny holes in the leaves of many plants, causing them to look like they've been

punched with a myriad of pins. Flea beetles are very hard to find, as they have a protective habit of jumping as soon as a leaf is disturbed. At the first sign of leaf damage, it is imperative to use a good garden dust or spray, as the cagey beetles can play havoc with eggplants. I lightly dust with 5% Sevin dust, and usually one or two applications are enough to discourage the beetles. I try to garden as organically as possible, so I don't like to resort to a great deal of spraying and dusting. I prefer instead to leave pest control to the birds, chameleons, and toads that patrol the garden.

Ichiban fruits are dark purple and elongated with a slight curve. They may reach a length of 10 to 12 inches and about 2 to 2½ inches in diameter and still be of good texture and taste, although the recommended harvesting size is six to eight inches. I use a sharp pair of clippers to remove the fruit from the plant, as the stem is woody and not easily broken by hand. Plants will continue bearing until fall, although the last fruits will not be of prime quality.

Eggplant is high in potassium and low in calories. Thanks to publicity created by the great number of chefs appearing on TV and writing books, eggplant is at last receiving the recognition it deserves. It is very versatile and may be used in many ways—battered and sautéed, stuffed, marinated, stir-fried, and so on. It is excellent to dice and use in vegetable soup. However, don't fool yourself into thinking that because eggplant is low in calories, it can be combined with cheese, sausage, and other tasty ingredients and still result in a low-calorie dish. If you gain a pound or two from such a delicious combination, don't blame the eggplant!

Seed Sources:

Park Seed Co.
Cokesbury Road
Greenwood, SC 29647-0001

Vermont Bean Seed Co.
Garden Lane
Fair Haven, VT 05743

J. W. Jung Seed Co.
Randolph, WI 53956

Eggplant supreme

This is a special mixture to enjoy during fresh vegetable season.

2 Tablespoons olive oil
2 medium Ichiban fruits, peeled and sliced crosswise in ¼" slices
2 large ripe tomatoes, cut in small chunks
1 medium onion, chopped
8 okra pods cut crosswise in ½" slices (optional)
2 medium bell peppers, coarsely chopped
1 small hot pepper, minced
6-8 fresh basil leaves, chopped (or 1 teaspoon dried sweet basil)
1 small bay leaf
½ teaspoon salt (optional)
1 cup grated cheese (use a favorite that melts well)
Optional: 2 cups coarsely chopped, leftover cooked chicken, lamb or other meat

In a medium size cast iron skillet, heat the oil until the bottom of the skillet can easily be coated by turning from side to side. With the exception of the cheese, put all ingredients in the skillet and simmer covered until vegetables have reached a semi-firm but not mushy stage. (Lift the lid occasionally and stir the mixture to be sure it isn't sticking and to bring all the vegetables to the same stage of doneness.)

Distribute the grated cheese over the hot mixture and stir just enough to melt the cheese. Serve hot over cooked noodles, brown rice, spaghetti, or whatever suits your fancy. Δ

For something different in your garden, try ground cherries

By Sally Denney

Looking for an interesting annual fruit to grow in your family garden? *Physalis peruviana*, also known as ground cherries, may be just what you are looking for. *Physalis* plants are as easily grown as tomatoes. From transplanting, the hardy plants take only 70 days to harvest the first fruits. Six plants furnished my family with enough fruit for pies, jam, and plenty to freeze for winter use.

While similar to tomatoes in their growing habits (they are a close relative in the nightshade family), ground cherries are not a true tomato. Their seeds resemble cherry tomatoes. The one- to two-inch fruits are enclosed in a papery husk that turns golden yellow when the cherry-sized fruit inside is ripe. When picking the fruit, you will soon discover why the Amish call them “ground cherries.” Jostling the plant causes the ripe fruit to fall to the ground. On the ground is where the gardener will find the sweetest fruits. Once picked, the husks slip easily from the cherries and expose plump, golden-yellow fruit.

The flavor is delicately exotic. Some seed catalogs say the taste is strawberry-like when eaten fresh. I conducted an at-home taste test, and every answer was different when I had my taste testers (my family) describe the taste. Their answers ranged from “a faint pineapple taste” to “a hint of kiwi.” No matter what each discriminating taster found in the fruit, a pint of husked cherries quickly disappeared from my kitchen counter as the family grabbed handfuls on their way in or out.

For first-time growers, I recommend starting the seeds indoors six to eight weeks before your last frost. Doing



this helps distinguish the seedlings from weeds and keeps the gardener from pulling them out by mistake.

My transplanted plants grew to around 24 inches tall with heavy foliage and flowers. For a while I wondered if they were called ground cherries because the plant hugged the ground before shooting upwards. The plants are very productive and gave my family of seven plenty of fruit.

We mulched our plants with grass clippings. Insects did not bother the plants, but ants loved the sweet fruits. When the pods were left too long on the ground, I would find that ants had beaten me to the harvest.

This year I plan to do one thing differently: I will place an old sheet under the plants during the peak harvest, so I can pick up the fruit with less effort.

The Amish are fond of ground cherries. Nearly all their cookbooks have at least one recipe for ground cherry pie. While living in Hawaii, my daughter discovered that the Hawaiians call ground cherries “poha” and make jam from them.

Seed catalogs list them under a variety of names, such as “Strawberry

Husk” and “Winter Cherry.” Gurney’s Seed and Nursery Co. lists it as “Yellow Husk Tomato” in their “Fun to Grow Novelties” section.

Since discovering the fruit, I’ve acquired a few favorite recipes for ground cherries.

Hawaiian pohā jam

3 lb. pohā (ground cherries)
 1/4 cup water
 1 cup sugar per cup cooked pohā
 1 Tablespoon lemon juice

Husk and wash fruit. Combine with water and cook slowly for 30 minutes, stirring frequently. Remove from heat and let stand overnight. Measure pulp and juice and combine with an equal quantity of sugar. Return to heat and cook slowly, stirring occasionally for one hour. Add lemon juice and continue slow cooking until product reaches jelly stage. Immediately pour into hot sterilized glasses and seal. (I froze my jam.)

Ground cherry pie

4 cups ground cherries
 1/4 cup lemon juice
 (or depending on taste preference, 2 drops almond extract)
 1 cup water
 3/4 cups sugar
 3 Tablespoons cornstarch

Put cherries, flavoring, sugar, and 1/2 cup water into a saucepan; heat to boiling. Mix 1/2 cup water with cornstarch and add to hot cherry mixture. Cook until thick. If too thick, add a little more water. Pour into an unbaked pie crust. Adjust top crust. Bake at 375° until crust is baked. Δ

What you do to one side of an equation, you do to the other to keep it balanced

By John Silveira

Years ago I taught high school algebra. I was young then and even before the first day of school I was sure I had the secret to what it would take to get a classroom full of students to understand algebraic concepts. I expected that every one of them would understand what I was teaching. And there would be no lost souls in my classroom.

Then reality raised its ugly head. From the first day, the concept the students had the most trouble with was one of the core concepts in algebra: how to work with an equation. About half my students did manage to grasp the concept well. But the rest, to varying degrees, found it confusing, including several for whom it seemed a complete and eternal mystery.

Not understanding what an equation is is a major shortcoming for math students. Day in and day out, they have to solve equations, even while they're learning other algebraic concepts. And the ability to deal with equations carries over later into classes like trigonometry, calculus, statistics, physics, and chemistry. Many students take no more math than they absolutely have to because they never feel at ease when working with equations.

It was discouraging. I wanted to be a good teacher. But I have to admit I never came up with a satisfactory solution that made the concept easy back then.

It's been years since I taught a high school class. But I am now a home-schooling parent with a high-school-aged daughter. So it was with great trepidation that I decided to teach her algebra. Because of her learning problems (that resulted in years of special education classes where algebraic concepts aren't even considered), I

realized I may once again be butting my head up against a wall.

So I decided that before I introduced her to an algebra text, I would fix in her mind the concept of an equation.

Adding and subtracting

That first day, I sat down beside her and drew a picture on a piece of paper. It was a balance scale.

"Do you know what this is?" I asked.

She looked at it.



"It's a balance scale," I said.

She nodded and said, "It's for weighing things."

"That's right. This balances if there's an equal amount of weight on both sides. If I add more weight to one side, that side goes down and the other side goes up." I tipped the picture as if throwing the scale out of kilter. "If, instead, I take weight away from that side, it goes up and the other side goes down." I tipped the picture the other way.

"So, if I add one pound to this first side," and I tipped the picture so that side was down, "how much do I have to add to the other side to make it balance—or be equal?"

"One pound," she answered, and I made the picture even.

"And if, instead, I subtract two pounds from the other side," and I tipped the picture the other way, "how much would I have to subtract from

this side to make it balance—or be equal?"

"Two pounds," she replied, and I tipped it back.

"That's how equations work. You have to keep both sides equal to keep them even. The word *equation* comes from the word equal. That's why the equal sign appears in every equation."

I wrote

=

on the paper.

"Just think of everything we do for the next few weeks as trying to make a scale balance."

She nodded.

"Now, here's a problem: Say you were walking down the street with a bag of apples and you met your sister, Meaghan. She hands you three more apples and asks you to put them in your bag and take them home with you. When you get home, you suddenly wonder how many apples you started out with.

"How many apples did you start with?"

She looked at me like I was crazy. "I don't know. You didn't tell me."

"Then let's call the number you started with, 'x,'" I said and I wrote

x

on the paper.

"And Meaghan gave you three more..."

I wrote:

$x + 3$

"Then you count the apples in the bag and there are 13. So you know the number of apples you started with is 'x' and Meaghan gave you three more and now you have 13."

I wrote " $= 13$ " after the " $x + 3$ " and we now had:

$x + 3 = 13$

"That's an equation."

She leaned closer. "That's an equation?"

The first addition and subtraction test

$$x + 6 = 11$$

answer (x = 5)

$$x + .51 = .98$$

answer (x = .47)

$$x + .18 = .48$$

(This was the first “trick question” because I expected her to write the answer as .30—which she did—and, without lingering, I pointed out that when it’s money, it’s .30 but that we can really write decimals like this as just .3)

answer (x = .3)

$$x + \$23 = \$100$$

answer (x = \$77)

$$6 + x = 11$$

(This was another trick question because for the first time the number was first and the unknown second. She rolled right through it.)

answer (x = 5)

$$x + 3 = 6$$

answer (x = 3)

$$x - .14 = .26$$

(Once again, I have a chance to show her that .40 can be written .4)

answer (x = .4)

$$x - 123 = 123$$

answer (x = 246)

$$x - \$19 = \$38$$

answer (x = \$57)

$$x - 1000 = 1$$

answer (x = 1001)

I nodded. It was like showing a primitive native in New Guinea a cigarette lighter.

“If I write this...”

$$x + 3 = 13$$

$$\underline{-3 \quad -3}$$

“then I’m taking 3 from both sides of our equation—like taking 3 pounds away from both sides of a scale to keep it balanced—and we get x+0 on one side—and anything plus zero is whatever you started with...” so I wrote an “x” down, “and 13-3 is 10...” So now we had:

$$x + 3 = 13$$

$$\underline{-3 \quad -3}$$

$$x = 10$$

“So, I started with 10 apples,” she said.

I nodded.

Then I said, “Suppose I asked you to hold 47¢ for me, and you put it in your purse with your change. Suddenly, you’re wondering how much of that money is yours. You count all the money and find there’s \$1.37. What are we going to call the money you had?”

I didn’t wait for an answer. I told her. “We’ll call your money x,” and I wrote on the paper.

x

“So, your x plus my 47¢ equals \$1.37.” I wrote:

$$x + .47 = 1.37$$

“So, if we take the 47¢ from both sides of the equation—just to keep it balanced, mind you—we have:

$$x + .47 = 1.37$$

$$\underline{-.47 \quad -.47}$$

$$x = .90$$

“What you’re trying to do is find out what x, ‘the unknown,’ is,” I emphasized. “You’re trying to get it by itself. We call that ‘isolating’ it. But anything you do to one side of the equation you have to do to the other to keep it balanced.”

I was sure she wouldn’t remember this the first time we did it. Or even the second or third time. But she made progress as I repeated similar exercises all week and it inexorably sunk in. The emphasis was always that

to solve the equation we are trying to isolate the unknown and if we have to add or subtract on one side of the equation to get the unknown alone, we have to do the same to the other side of the equation.

Most of algebra is just mechanical. I hoped that once she realized this she would be less intimidated, so that solving equations would become automatic for her, just as it is for me.

Multiplying and dividing

One of the truly amazing things I discovered when I taught high school was that students sometimes got the solution to a problem but didn’t know how they got it—until I told them how.

Situations similar to the following happened many times:

I’d query a student, “You have a bag with marbles in it. You haven’t counted them to see how many. Someone says, ‘I’ll triple the number of marbles in the bag,’ and he does. Then he hands the bag back and you count the marbles in it and there are 117. How many were in there when you started?”

The student would think, then reply, “Thirty-nine.”

“How did you get that answer?”

He would look at me for a few moments, then say, “I don’t know.”

And believe me, he didn’t. This happened again and again with many students. I couldn’t accept ‘I don’t know’ as an answer. Sometimes I even imagined that every third student in my class was the Rain Man.

But I finally realized that the problem was that they just didn’t have the tools to figure out how to explain it. And that was my job, to show them algebraically how they did it and demonstrate that the method worked all the time.

So it happened with Mary. I asked her that very same question, and, when she couldn’t explain to me how she got the answer, I showed her how she did it:

x

I wrote, is the number of apples originally in the bag.

3x

is the number of apples in the bag after the number has been tripled. And after she counts the apples, she discovers

$$3x = 117$$

is the equation.

She watched me do this, then I divided both sides by 3 to get the x alone.

$$\underline{3x = 117}$$

$$\underline{3 \quad 3}$$

When the 3x is divided by 3, the 3s cancel out leaving just the x. But you have to divide the 117 by 3 also, which results in 39. So,

$$x = 39$$

It made sense to her.
With this fresh in her mind, I asked, "If you had another bag with apples and you gave it to me, and I said, 'I'm going to increase the number of apples 5 times,' let's see how you'd write it. Since you don't know how many apples were in the bag, how do you write it?"

She wrote
$$x$$

"And I multiplied it 5 times. How do you show that?"

She wrote a 5 before the x.
$$5x$$

"And let's say you now count the number of apples and there are 15. How would you show what that 5x is equal to 15?"

She added an = and the 15.
$$5x = 15$$

"That's it," I said. Now, to get the 5 off the x you have to do the opposite of multiplication to get rid of it."

"So I divide by 5?" she asked tentatively.
"That's right."
"So, $x = 15$," she said.

"But you only divided the 5x by 5. To keep it an equation, you have to do the same to both sides to keep it balanced. So, if you divide the other side, where the 15 is, you get..."

"Three?" she asked.
We worked several examples like this and I constantly pointed out that when her unknown was multiplied by a number, she had to divide *both* sides of the equation to get rid of it.

These problems were beginning to come easy to her.

"Now, let's say we have a box of cookies," I said, "and you have 5 friends come over. I decide to divide the cookies evenly among the 6 of you and you discover you each have 7 cookies. How many cookies were there originally in the box?"

"42," she replied.
"How did you get that?"
She thought a minute. "I don't know."

"Well, let's say you didn't know there were 42, then the number of

cookies is our unknown. How are we going to represent our unknown?"

"With x?"
I wrote
$$x$$

on the paper.
"And there were 6 of you I divided them among, so
$$x/6$$

is how many you each got. And when you counted what you each got it was equal to..."

"7 each."
"So this..." and I wrote
$$x/6 = 7$$

"...is the equation. And since we're dividing by 6, we have to do the opposite of division to get rid of the 6. And the opposite of division is..."

"Multiplication," she said.
"So we multiply both sides by 6
$$6 * x/6 = 6 * 7$$

"What's $6 * x/6$?"
"I don't know," she said.
"What's 6 times 1 over 6?"
"One."
"What's 6 times 2 over 6?"
"Two."
"What's 6 times 5 over 6?"
"Five."
"So, how about 6 times x over 6?"
"X?"
"That's right."

"It's like what we learned when we learned to multiply fractions," she said. "The numbers cancel out."

"That's right. In this case the 6s cancel out.

"And what is 6 times 7?" I continued.
"42."

I wrote
$$x = 42$$

The delight she was beginning to find in these exercises was twofold. First, we get along well, so she likes working on these things with me. But second, and of greater importance to me, is that she sees everything I'm teaching her so far still consists of mechanical rules she can memorize. Because of this second point, she is not intimidated like many of my high school students were.

The first multiplication and division test	
$6x = 24$	answer ($x = 4$)
$5x = 125$	answer ($x = 25$)
$x/2 = .48$	answer ($x = .96$)
$x/11 = 10$	answer ($x = 110$)
$4x = 1$	answer ($x = .25$ or $1/4$)
$4.5x = 10.8$	answer ($x = 2.4$)
$x/2 = 6.5$	answer ($x = 13$)
$2x/3 = 6$	answer ($x = 9$)
$x/2.5 = 7.5$	answer ($x = 18.75$)
$x/2.5 = 1$	answer ($x = 2.5$)

But I'm going to have to stay with this everyday. Only repetition will reinforce the principles until they become second nature to the student.

Combining operations

It was a small step to combining operations, i.e., combining addition or subtraction with multiplication or division.

However, there is a difference between the equations

$$2x + 6 = 30$$

and

$$2(x+6) = 30$$

In the first, $x = 12$, and in the second $x = 9$. I thought about how to approach this for a day then I decided to leave out problems that required parenthesis until later. I was still concentrating on how to get her to understand the concept of balancing equations. I would deal with more complicated equations later.

I sat down with Mary and wrote:
$$2x + 6 = 30$$

The first thing I did was explain that these are the easiest of the equations that involve either addition and subtraction along with multiplication and division. Then I showed her how to

solve it. First eliminate anything that's added or subtracted; then it's just like the other problems she did. So I wrote

$$\begin{array}{r} 2x + 6 = 30 \\ -6 \quad -6 \\ \hline 2x + 0 = 24 \end{array}$$

which resulted in

$$2x = 24$$

which is a type of problem she's already familiar with.

We worked many of these problems. Then I quizzed her.

In fewer than three weeks she had as good an understanding of what an equation was as the best of my high school students and, looking back, I realize that if I could step back in time and sit down with each of those confused ones individually, they all would have understood the concept.

Later on I'll teach her things such as: if she has to take the square root of one side to get an answer, then she has to take the square root of the other side. But that's later.

Now, Mary, for all the problems she has had in school before I started homeschooling her, might have been one of those students who would have caught on to what equations are all about, anyway. But the fact is, as we

go off into factoring, exponents, and solutions to special equations like quadratics, I'm assured she won't be hampered by a lack of understanding of what equations are.

Summary

If you can get the following in your child's head, you'll have gone a long way toward taking the mystery out of algebra.

1. An equation is nothing more than a balance scale for numbers.
2. Whatever she does to one side of an equation to get the unknown by itself, she has to do to the other side; otherwise, it doesn't balance.

For now, all she has to know is that, if she has mixed operations, i.e., when addition or subtraction are mixed with multiplication or division, she subtracts or adds numbers to each side of the equation before she divides or multiplies. I will teach her how to deal with terms that are in parenthesis, next.

If you don't know algebra

It is an unfortunate truth that to teach algebra, you have to know a lot about it yourself. The solution to teaching it if you never learned it, or you did learn it but you can't remember it anymore, is beyond the scope of this article. But please don't expect to just send your kid off in a corner with a book and expect her to learn it without guidance.

It is possible to learn it along with your child. I and about 20 other students once survived a semester of probability and statistics taught by a man who had never had either course in college. He managed to teach us, though he was always just a few weeks ahead of the class. But he was a man who already had a great deal of experience with mathematics.

The astute reader will realize I haven't dealt with problems that involve negative numbers, like

$$x + 6 = 3$$

Interesting math terms

There are two words I'm sneaking into Mary's vocabulary. One is *inverse*. The inverse of a number in addition and subtraction is the number you must subtract or add to get zero. So, the inverse of 3 is -3 because $3 - 3 = 0$. The inverse of -7 is 7 because $-7 + 7 = 0$.

When it's only addition and subtraction that are involved, zero is called the *identity* because when a number has zero added to or subtracted from it, the number is unchanged. $3 + 0 = 3$ and $7 - 0 = 7$. Zero is called the identity.

The inverse when you're multiplying and dividing is the number you must divide or multiply by to get 1. So, under multiplication and division, the inverse of 3 is $1/3$ because $3 * 1/3 = 1$ and the inverse of $1/7$ is 7 because $1/7 * 7 = 1$.

When we are talking about multiplication and division, there is a different kind of identity. Here, 1 is the identity because when you multiply or divide a number by 1, you get the number back. So, $3 * 1 = 3$ and $7/1 = 7$.

I'm not asking her to memorize these terms yet. But I use them as I explain these things to her. And, like a visitor to a new land who is learning to pick up the language, she is gradually using them too.

which results in a negative number for an answer, nor problems like

$$-3x = -6$$

which involves division or multiplication with negative numbers.

Negative numbers are not something my daughter is yet familiar with. On my list of priorities was to first teach her how to work with equations.

In future issues I will deal with other concepts my students had difficulty with, including "the order of operations" which are the rules for knowing which operations to perform first: addition, subtraction, multiplication, division, exponents, numbers in parenthesis, etc. And we'll learn to deal with those infamous and nefarious negative numbers. Δ

The first test combining the operations

$3x + 6 = 60$	answer (x = 18)
$2x - 7 = 13$	answer (x = 10)
$5 + x/4 = 6$	answer (x = 4)
$x/10 - 10 = 10$	answer (x = 200)
$11x + 5 = 5$	answer (x = 0)
$5 + x/11 = 5$	answer (x = 0)
$x/3 + 6 = 19/3$	answer (x = 1)
$x/3 - 5 = 10$	answer (x = 45)
$x/2.5 + 6 = 13.5$	answer (x = 18.75)
$x/2.5 - 6 = 1.5$	answer (x = 18.75)

High altitude gardening — it's a challenge but these helpful tips can get you started

By Dynah Geissal

High altitude gardening is definitely a challenge, but it can also be very rewarding. For those of us who live in the mountains and are striving for self sufficiency, it is a necessity. Attitude is important for success: Trying to "conquer the elements" is possible to a certain extent, but it's self-defeating, prone to failure, and extremely frustrating. On the other hand, working *with* Nature is rewarding and leads to a feeling of harmony with the earth and the seasons.

With this in mind, forget about tropical and sub-tropical crops until you are proficient at growing the cold season ones. Experimenting can be fun, but first learn to provide basic food in these somewhat adverse conditions.

Choose your site

Give a lot of attention to your choice of site. Ideally, it should be south-facing with water nearby. It should be part-way up a slope so that it is not in a frost pocket, but not up so high that the winds can scour it. The slightest slope has an effect on the sun's ability to heat the garden. In addition, the garden should be fairly close to the house. Not only will it receive more attention that way, but also there is less chance of destruction by deer or bears.

Be sure your chosen site gets plenty of sun. You may have to clear away some trees. If your topsoil is as shallow as mine is, you will want to begin building it up from the very beginning. Someone gave me a load of topsoil. In addition, I worked in rabbit manure and bedding from the chicken house. Fresh chicken manure can burn plants, but mine was mixed with large



amounts of straw and I had no problem. Keep in mind that if you import topsoil, you may also import weed seeds.

Unless you have running water, you'll have to carefully evaluate water availability for your garden. We positioned ours as near to our springs as we could without having it waterlogged after a rain.

Choose your seeds

It is very important to purchase seeds from a company that specializes in high altitude or cold season gardening. I always use seeds from Garden City Seeds in Victor, Montana, and I've had great success with these. Not only are they bred in and for a cold climate, but the company also provides lots of helpful information.

Consider also that a plant variety that matures in 60 days in a mild climate may take 75 days in a place where the ground stays cool and the nights are always cold. When the air is thin, temperature variations are extreme, and the seeds you plant need to be suitable. For example, it's August as I write this. Yesterday, the high was 87° and the low 27°, and that

is very common. Clear, sunny days bring the extremes, while cloudy days are much more moderate. Most varieties that do quite well in other parts of the country are not going to prosper under these conditions.

Your high altitude garden will basically consist of greens, roots, pea crops, cabbage family crops, and some herbs.

Starting your garden in the fall will give you a head start. Prepare the soil as you would for a spring garden. If your soil is acid, work in plenty of ashes, as well as bedding and compost. When the weather is cold, but the ground has not yet frozen, plant spinach, lettuce, peas, and snow peas. In your herb garden, try parsley, chives, chervil, coriander (cilantro), chamomile, mint, and dill. All of these herbs are self-seeders, so after the first year you may not have to replant.

If your area has snow all winter, you will not need to mulch. If it doesn't, pile on the compost and bedding, so that the seeds don't germinate during an early thaw. Not all these crops will do well every time, but you should have enough success to make it worthwhile.

When to plant what

Garlic should always be planted in the fall where growing seasons are short. It's OK if your garlic starts to grow before the ground freezes. Cover the garlic with about six inches of mulch.

When the ground begins to thaw and the first wild plants are peeping through the top layer of the warming soil, you can plant peas and snow peas and sugar snaps. When they start to sprout, add mulch for protection. If you add mulch too early, the seeds will stay too cold to germinate. On the other hand, nights in the 20's will damage or kill your plants, so pile the mulch lightly around your plants with just the growing tops above. It will take experience to get this right, and even with experience, there will sometimes be failures. We're really pushing the season here.

In late April, plant root crops such as carrots, parsnips, and onions. This is also the time to plant parsley. These crops are planted late enough that by the time their long roots are growing well, the ground should be thawed (say early May).

In May or early June, plant lettuce, spinach, radishes, and turnips. The ground will be warm enough now so that these seeds will benefit from a layer of mulch. Not only will mulch keep the seed beds moist, but it will keep them protected from the cold night air, thus hastening germination and growth. As they push up through the mulch, you will not have to pile more on, as they will be able to withstand frost.

In mid-May, plant potatoes, using extra large chunks of seed potatoes. These should be planted five inches deep and covered with a six-inch layer of mulch. As the plants grow, continue to add mulch, so that only the tops of the plants are exposed. In that way only the tops will be lost to frost, and the rest of the plant will live.

In early June, plant beets and set out cabbage, broccoli, Brussels sprouts, kale, and collards.

In mid-July, plant second crops of lettuce, spinach, and radishes. If lettuce freezes, let it warm up naturally before picking it.

If you have snow cover, you can dig out Brussels sprouts, kale, and collards as you need them. Otherwise, cover with mulch to prevent freezing and thawing.

Carrots can be left in the ground all winter if they are covered with bags of leaves. Just lift a bag and pull up as many as you need.

To store cabbage, dig a pit, line it with straw, and place your cabbages inside. Cover with straw and then bags of leaves.

Leave parsnips in the ground and use them as soon as the snow melts.

If strawberries and raspberries grow wild where you live, you can probably grow domestic varieties. Choose varieties carefully and mulch in the winter unless you have continuous snow pack.

Try growing rhubarb and Jerusalem artichokes, too. Rhubarb is a hardy perennial, and Jerusalem artichokes will usually come back year after year, since it is unlikely you can dig up the tuber from every plant.

Cold frames and greenhouses will extend your growing season for lettuce, greens, chives, and parsley, but unless you want to use supplemental heat, it's probably not worth the effort to try other vegetables. Even if the plants stay alive, the growth will be so slow that it won't really be worthwhile.

Some people get great enjoyment from seeing what they can coax into growing under adverse conditions. If you're one of those people, go for it. First, though, concentrate on the easier plants that are more likely to provide sustenance for you and your family. Δ

A BHM Writer's Profile: Edna Norrell

Norrell, born in 1920, raised three girls and one boy of her own then, when they were grown and out,



she did foster care for 20 years for unwanted, neglected, abused children. She also did day care for kids. When she was 68 her daughter left a beat up old typewriter with her while she was moving and Norrell started trying to type. She has since written and sold many articles and short stories, won fourth place in Legacies national contest twice, won a national Harlequin contest, and a Nike contest. She is now 78 and enjoys traveling. Since turning 70 she has been to Alaska, Mexico, the South Seas, the Virgin Islands, and Hawaii. Her favorite writing is humor; she loves to make people laugh. She has come a long way from that beat up old typewriter and now does her work on a computer and says it is great.

She says she doesn't do too many how-tos but since her husband has a colony of purple martins she wrote the article on how he provided homes for them for BHM.

A BHM Writer's Profile: Allyn Uptain

Allyn Uptain is a computer consultant working diligently to save the world from the Y2K crisis.



Goats don't eat zucchini

By Jacqueline Binford-Bell

I was raised by an earth mother who always seemed most at home when she had her hands in dirt. By contrast, *my* feet seldom touched the ground, and my head was always in the clouds, filled with some grand dream or make-believe world. The only time I came in touch with the earth was to trip over it.

Adulthood did not seem to change that much. I merely wrote down my daydreams and called myself a writer. The spring and summer of 1972, I was writing my first novel, and despite my weaving and angora goat raising, I was less connected to the world than most. I would turn 27 that June, but I was more a child of fantasy than at seven. Paul Simon sang of "slip-sliding away," and I knew what he meant. To ground myself quite literally, I decided to emulate Mother and plant a garden.

What I knew about gardening came from the back of the Burpee seed packages I purchased at the local feed store. A growing season was that period when the ski area six miles up the road was not open. Dirt was dirt, even if it did come in a variety of colors from yellow ocher to Indian red to burnt umber. That at least I had noticed during my watercolor painting period. And I was never the one to read directions until all else had failed.

I had not even taken notice of my mother's gardens since second grade. That was her last garden before we left the lush Missouri River basin of my childhood. That half-acre garden in my memories was weed- and bug-free and magically produced crisp, cool sweet peas which I plucked and ate on early morning strolls down the rows, as I went off to climb my



favorite oak tree and dream away the day with a favorite book and Boy, my beloved English setter.

That I no longer lived on a grassy plain of peat with scattered hillocks of oaks and black walnut, but on a steep mountainside of rocks covered with Ponderosa pine should have given me my first clue that the reality of a garden would be quite different from my fantasy. That first garden, like those of Robert Frost, grew rocks best.

Cucumbers, I found, did not like the chilly mountain nights, and the corn was not knee-high by the Fourth of July and never reached *Oklahoma's* mythical elephant's eye. Beans and peas sprouted well but quickly fell prey to my small flock of Angora goats. Solomon, Sheba, and Babylon would have gotten the lettuce, too, but the wild rabbits beat them to it. (The rabbits went *under* the chicken-wire fence and the goats went *over* it.)

Cabbage mites got the cabbage, cauliflower, and broccoli. Frost claimed the pumpkins, and the melons seemed to have just given up soon after

sprouting. The only plant that seemed to thrive was zucchini. The dark green plant with its curious long fruit survived the arid soil, low humidity, chilly nights, and rarified air as if it were a weed.

When it first began to thrive, in fact, I thought it must *be* a weed. I had forgotten I had planted the zucchini, since the goats also had eaten my row markers. I would have pulled it up, but by then *anything* green was welcome. If nothing else, it would please the goats, who took great delight in stealing forbidden fruit while I daydreamed during their daily outings from the pen. But the goats studiously ignored it, preferring even the Russian thistle that grew wild at the garden's perimeter.

And so, undaunted by even my novice gardening efforts, the zucchini plants flourished. In the middle of summer it began to produce a seemingly endless harvest of squash, a vegetable I had at that time seldom eaten by choice and never cooked.

My neighbor, a retired widower from Georgia who seemed to be quietly and endlessly amused by my garden, had given me the package of zucchini seeds and came regularly to check on their progress and chuckle at mine. When I professed not to know what to do with the long green vegetable, he gave me a recipe for zucchini bread. It was delicious, but it only used two cups of the abundant vegetable for two loaves. Zucchini soup, a recipe found in my collection of cookbooks, used more. Zucchini sauteed with onion used it most easily but proved the least palatable. Zucchini breaded and fried like at the neighborhood Italian restaurant was my favorite, but it soon grew tiresome.

Finding new ways to use it became a challenge, and I was soon substituting it for almost anything in my favorite recipes: zucchini pickles and zucchini pie and zucchini salsa (and a natural dye for handspun Angora goat hair that unfortunately was a failure.)

Friends who had previously enjoyed coming to dinner began turning down invitations and sent me recipes and cookbooks instead. Soon I had so many ways to cook zucchini that I considered writing my own cookbook on the subject. The same friends smiled indulgently at that and encouraged me just to keep thinking and call them later. The zucchini plants ultimately succumbed to the mountain winter, and so my friendships were saved.

After my horticultural failure that summer, I am not sure why I planted a garden the next year, unless (as Mother maintained) it is that I am just plain stubborn and unwilling to let anything defeat me. Or perhaps I was so detached from reality that I was unaware I had failed. I had, after all, produced a bounty of zucchini. In part, I think, it was the memory of watching the zucchini grow the year before that re-ignited the desire to plant the next spring. Like Thoreau at Walden Pond, a tiny part of me at least "...wished to live deliberately, to

front only the essential facts of life." For Thoreau it was in watching beans grow that life and the seasons became real, and for me it was zucchini that brought me (even fleetingly) from my imaginary worlds to the earth on which I was forced to live. It is gardening that keeps me from just flying away.

I have planted numerous gardens since then. I have learned about growing seasons and climatic ranges and acidity of soil. I have gardened on the rich soil of the Piedmont Plateau of North Carolina and in the dark peaty soil of the Missouri River Basin and have learned to adapt my seed choices to the peculiarities of the area . . . but I have always planted zucchini, and I have never seen it fail to produce.

I now live at 8000 feet above sea level in the heart of the Sangre de Cristo Mountains of Northern New Mexico, where my garden must be a 90 day wonder. I have mastered the techniques of forcing plants that like longer seasons and wetter and warmer summers. I have gone from the basic vegetables to gourmet varieties I cannot get in the local store. Every January, when winter is raging outside my window, I compile my seed orders, and as spring begins to claim temporary victories in March, my first seedlings are sprouting in plastic trays lined up along every window.

A BHM Writer's Profile: Linda Gabris



Linda Gabris is a full time freelance writer and creative writing instructor. Her articles, fiction, and poetry have appeared in publications across North America. She has hosted an outdoor column for a number of years and especially enjoys writing features about nature and outdoor recreation.

Despite all that, it is the lowly zucchini, hastily cast into the ground and given no special consideration, that never lets me down and oddly provides me the greatest pleasure. If the goats would eat what I do not want and cannot use, it would be a perfect plant. Δ

A BHM Writer's Profile: Ruth Adler

Alder has been a free lance writer for the past 30 years. She is also a former secretary and newspaper reporter. She has had 150 articles, features, and stories published over the years. Some magazines that published her manuscripts are Country, Country Folk Art, Almanac for Farmers and City Folk, Fashion Accessories, Grit, Capper's, and Mature Living.



Grow horehound for the health of it

By Jim Hildreth

Growing food is a large step along the road of self-reliance, and growing medicine comforts each step along the way. Horehound, *Marrubium vulgare*, should be made to feel at home in all gardens. It's an attractive perennial herb with time tested medicinal benefits and other desirable traits. It's easily grown, and being a perennial, it grows bigger and better every year.

The ancient Egyptians first recorded growing horehound and using it to relieve cough symptoms. They derived its name from Horus, their god of sky and light. The Greeks credited the herb with curing bites of mad dogs, calling it "hoarhound." The Anglo-Saxons referred to the herb as "hare hune," meaning "a downy plant," undoubtedly due to the plant's wooly appearance, and they used it to combat the effects of rabies. Horehound's latinized generic name, *Marrubium*, actually derives from the Hebrew word "marrob," meaning "bitter juice." The herb is one of the five ritual bitter herbs of Passover.

Time-tested cough remedy

Horehound has been used to treat everything from snake bites to jaundice, but it's the herb's use as a cough remedy that's withstood the test of time. Our grandparents attest to taking horehound cough drops and cough medicine years ago, and it remains an effective remedy to this day.

It's not fussy

That's the good news. The great news is that horehound flourishes on its own with little help from the gardener. Ideally, horehound grows best in organically rich soil and a location that receives full sun. That doesn't

mean, however, that the herb fails in anything less than the perfect growing environment. In fact, my 10-year old horehound planting grows beautifully in partial shade. It thrives in my organically rich garden soil, but I wouldn't hesitate to plant it in poor, sandy soil either, because it adapts quickly to harsh conditions.

Horehound grows up to two feet tall with fuzzy, light green, heavily wrinkled, inch-long leaves. It serves as an accent in the herb garden when planted behind lower growing, darker colored oregano and thyme and in front of taller, darker beebalm, feverfew, or aconite. It produces tiny white flowers that grow in whorls on the stems the second year after planting. The flowers attract pollinating bees to the garden, and their small size proves extremely inviting to beneficial predatory and parasitic wasps.

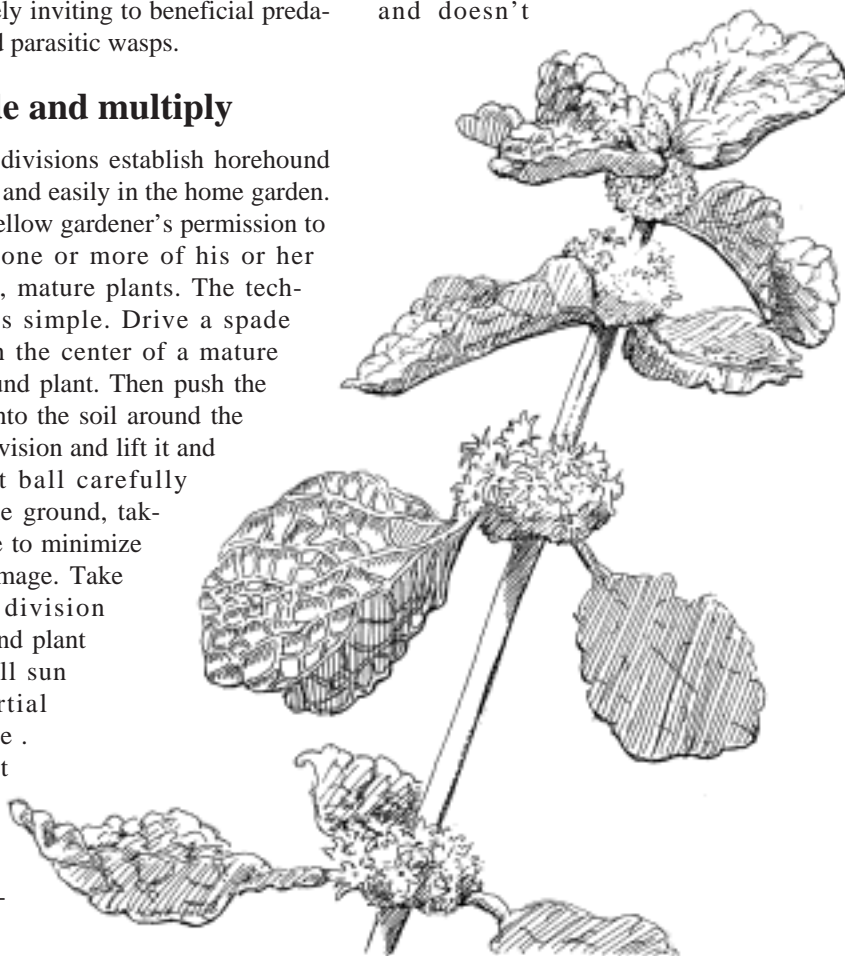
Divide and multiply

Plant divisions establish horehound quickly and easily in the home garden. Ask a fellow gardener's permission to divide one or more of his or her healthy, mature plants. The technique is simple. Drive a spade through the center of a mature horehound plant. Then push the spade into the soil around the plant division and lift it and its root ball carefully from the ground, taking care to minimize root damage. Take the division home and plant it in full sun or partial shade. Firm it into the soil to eliminate

nate air pockets and water thoroughly with a dilute solution of liquid seaweed to reduce transplant shock and further reduce air pockets between the soil and roots.

Horehound may also be started from seeds planted indoors during early spring for transplanting in mid-to-late-spring or direct-seeded outdoors during late spring. Moisten the soil, then plant the seeds 1/8" deep. Cover them with fine soil, water again, and maintain even soil moisture until the seeds sprout and grow several inches tall. Thin seedlings to stand a foot apart or spread them throughout the herb and vegetable gardens to attract beneficial insects.

Horehound doesn't require much attention once it's established. It tolerates drought extremely well and doesn't



require heavy feeding, which helps explain why it grows readily along roadsides, on dry grasslands, and in the “difficult” areas of the garden. Nevertheless, I give horehound the royal treatment: organically rich soil, monthly dousing with liquid seaweed and fish emulsion, and compost side dressings in spring and fall. It receives 1/2" of water per week during this area's dry summer season. This drought-tolerant herb could survive on a lot less water, but I find that it grows faster and stronger when given an even weekly supply.

Harvest and storage methods are fairly standard. A light harvest may be taken the first year from seed. After that, heavy-handed harvests two or three times a season do no harm to the plants. For the best medicinal properties, cut stems just as the first flowers open. To maximize horehound's potential to attract beneficial insects, allow the plants to flower for a few weeks before harvesting. Either way, cut the stems to within three inches of the ground. Hang dry in a cool, shaded place, shuck the leaves and flowers from the stems, and store in a cool, dark place in airtight containers.

Making medicine

I find making horehound cough medicine very gratifying. It increases self-reliance by eliminating the need for over-the-counter commercial cough medicines and saves money in the process. It provides an effective cough remedy without the usual drowsiness or other side-effects found in commercial preparations.

Make horehound cough medicine by steeping a couple ounces of fresh horehound or an ounce of dried material in a pint of hot water for 10 minutes, stirring occasionally. Strain the liquid into a bottle and add honey to taste. I usually add as much honey as there is liquid, but keep in mind that horehound tastes very bitter. Adding twice as much honey as there is liquid

A BHM Writer's Profile: Angela Jenkins

Angela Jenkins lives in Glendale, Kentucky, and works at the Elizabethtown Community College, in the college library, as a technician. Angela writes on a free-lance basis and has previously published short stories and poetry as well as magazine articles. She is a member of two writers groups and is on the board for ECCO, the college literary magazine.



A BHM Writer's Profile: Craig Russell

Russell's formal training is in history and biology and those interests come together in old breeds of livestock, old garden and agricultural plants, gathering wild foods, and doing things the old way that have become his avocation.

Given the time he's a rambler and a roamer with an interest in old trails and far places. Sometimes he is a caver and a climber as well.

Currently he's president of the Society for the Preservation of Poultry Antiquities (SPPA).



makes a better-tasting concoction. Shake the solution while it's hot to thoroughly mix it. Store it in the refrigerator. Hot horehound tea with honey and lemon feels great on a sore throat, too.

Horehound certainly earns its keep in the garden. Planted once, it increases in size every year thereafter, providing the planting scheme with attractive wooly foliage. Its ability to attract beneficial insects helps gardeners maintain a chemical-free garden, and its medicinal properties give welcome relief from coughs and sore throats—all that from a low-maintenance, perennial herb.

Seed sources

The following companies sell horehound seeds and will send a catalog free for the asking:

Abundant Life Seed Foundation
P.O. Box 772
1029 Lawrence St.
Port Townsend, WA 98368

Nichols Garden Nursery
1190 North Pacific Highway
Albany, OR 97321-4580

Mellinger's, Inc.
2310 W. South Range Road
North Lima, OH 44452-9731

Park Seed® Company
Cokesbury Road
Greenwood, SC 29647-0001 Δ

Visit our popular website at:
<http://www.backwoodshome.com>

Blueberries are an affordable luxury

By Alice B. Yeager

Photos by James O. Yeager

Blueberries are an affordable luxury that almost anyone can grow—that is, anyone with a little extra yard space. They are as functional as well as an attractive addition to the home landscape, and if one has an unused lot or more in land, blueberry bushes can be downright lucrative.

When we began to grow blueberries for our own use a number of years ago, the only blueberries in our Southwestern Arkansas area were wild, hard to find, and referred to as “summer huckleberries.” They were found in hilly, wooded places in the company of chiggers, ticks, and snakes.

Having been treated to delicious blueberry pie up north, I often wondered why I seldom saw anything made from fresh blueberries in my part of the country. After some research, I found out that our part of Arkansas is somewhat south of the best blueberry growing areas. However, I also learned that some varieties had been developed that were especially suited for the South (Zones 8 and 9). As a group, these varieties are known as “Rabbiteyes.”

I ordered early, midseason, and late varieties of blueberries in the hope of having some of them perform well here. As it has turned out, I wasted neither time, effort, nor money, as our blueberry bushes have consistently given us plenty of fruit for our own use as well as to share with friends. By having different varieties, the harvest season is stretched, so that fresh blueberries are available over a longer period of time.

In our piney woods area, we are ideally situated for growing blueberries. All blueberries must have well-

drained, acid soil, as their pH requirement is not over 6.0. They don't do their best in ordinary garden soil, as the pH is a little too high—fine for cucumbers and okra, but wrong for blueberries.

Blueberry bushes will grow in full sun or semi-shade. Our blueberry patch is in an area that receives light shade part of the day, which makes picking a pleasant chore on warm days. Shaded areas are impractical for large pick-your-own operations, where blueberries are grown by the acre.

The fact that these plants will tolerate some shade makes them very desirable for the homeowner who would like to use a few bushes in his landscape plans. Being acid-loving, they can be worked in very nicely near azaleas, camellias, cape jasmynes, etc. As a fringe benefit, blueberry bushes close out their annual performance with a bright display of red color in late fall.

A few simple rules for planting blueberries

A few simple rules need to be followed when planting blueberry bushes: Never crowd the roots, but dig holes large enough to extend a few inches beyond the actual rootspread. Plant bushes at the same depth as they were grown in the nursery. This is easily seen by the soil line at the base of the plant. Assuming the soil is the proper pH and no additives are needed, fill in the hole halfway with dirt, water thoroughly, then complete filling with dirt. Water again to get rid of any air pockets around the roots.

If you live where summers are drought-prone, make some small dams about 15 inches in diameter around the plants so as to direct water to the roots. Young plants should not be

allowed to suffer for lack of water, as they may die or be stunted.

Blueberry bushes appreciate heavy mulches of a mixture of leaves and pine needles. A steady diet of this organic material is all that is needed as far as feeding is concerned. It is also a good way to use yard rakings to advantage. The plants are shallow-rooted and do not need cultivation, although they should always be kept free of invasive vines or weeds.

These plants do not require large spaces, and they may be planted five to six feet apart. Depending on the variety, they will grow from four to eight feet tall. Blueberry plants are very simple to maintain, as they do not require a great deal of pruning. Some nurseries recommend cutting off the low, bushy side growth at the end of the first year. Others say to keep the shorter branches pruned off mature plants in order to encourage the young side-shoots. In our case, being non-commercial and averse to a lot of work, we have found that keeping bushes clean of dead branches and lightly pruning when necessary is sufficient.

Our blueberries are among the most trouble-free plants we have. It has never been necessary to use any sprays. If your area is subject to problems of some sort—rust, fruit fly maggots, etc.—it would be wise to consult a county extension agent and seek out a *non-toxic* control.

Plants will begin bearing in earnest in about three years from planting. They need cross-pollination, so more than one variety should be planted. Most nurseries have special offers combining three or more varieties. By having early, mid-summer, and late varieties, the harvest season can be stretched over a goodly portion of the summer. Surplus berries can be turned



A plump bunch of Woodard blueberries just right for picking

into jam or syrup, or frozen for later use in muffins or other recipes.

Rabbiteye varieties

Our Rabbiteye varieties include Woodard, Tifblue, Delite, and Homebell. Woodard is a choice variety that reaches a height of about five feet. It is a heavy bearer and heralds the beginning of the blueberry season—early June in our Zone 8A. Berries are large, medium-blue, and slightly tart.

Tifblue is a taller plant than Woodard and begins ripening its berries while Woodard is still producing. Tifblue is prolific and has round, sweet, powder-blue berries. I love to sample these blueberries while “working” in the blueberry patch.

Another of our very good blueberries is the Delite variety. It begins to ripen about the first of July and gives a good harvest. Berries are round, medium blue, and a tiny bit tart. Plants tend to be more upright in growth than the others.

Homebell is a unique blueberry and one that I no longer see listed by nurseries. The berries are round and black and have a huckleberry flavor. It

ripens about the same time as Delite. It is not a heavy yielder, but its flavor is superb.

Besides those of us who tend the bushes, there are other competitors for blueberries. Birds are fond of the ripe berries, but they redeem themselves by policing the bushes for insects. Frankly, I don’t mind the birds and leave the remainder of the crop for them when it thins down. (Small pay for such diligent workers!)

If birds become too much of a nuisance at the peak of the season, they are easily discouraged by loosely tying pieces of *dark* sewing thread at random between the branches. This creates the effect of a strong spider web and frightens them away without harming them. One should be careful not to tie thread (particularly nylon thread) around the branches too tightly, as it can restrict the circulatory system of the branches, resulting in dead limbs.

Blueberry patches are a boon to beekeepers, as the first hint of the opening of the small, bell-shaped flowers brings scout bees to the plants. Until blossoms drop, our blueberry bushes are abuzz with bees.

They’re not huckleberries

Blueberries are often erroneously referred to as “huckleberries,” but the two are different. Blueberries ripen in summer and huckleberries ripen in late fall. Blueberries have hardly-noticeable seeds and huckleberries have fairly large seeds. Pies made from huckleberries have great flavor but are like trying to eat buckshot. Hence the name “crackerberry.” Huckleberries are seldom found in cultivation, but tend to be regarded as wild food.

I have noticed that some restaurants in mountain resort areas like to list huckleberry pie on their dessert menus. This gives a down-home, living-off-the-land touch to the menu. Believe me, if they really served *huckleberry* pie, patrons would never order a second piece!

Due to the Rabbiteye introductions, a number of blueberry farms are now flourishing in the South, indicating that blueberry production may soon be numbered among our major farm industries. Before the new varieties were created, blueberry-growing was mainly confined to Zones 4 to 7. Unlike most orchard production, it does not take many years before blueberry acreage can begin to show a profit. Bushes are easy to maintain and “pick-your-own” is the order of the day, thus relieving owners from having to hire extra labor to harvest the crop.

Whether one is the owner of several acres of blueberry bushes or a small patch, there’s nothing better than hot blueberry muffins on a cold, miserable day. (See recipe below.) Forget the weather—it’s blueberry time. Enjoy!

Some sources for Rabbiteye varieties

Stark Bro’s Nurseries
P.O. Box 10
Louisiana, MO 63353-0010

J. W. Jung Seed & Nursery Co.
235 S. High Street
Randolph, WI 53957-0001

Henry Fields Seed & Nursery Co.
415 N. Burnett
Shenandoah, IA 51602

Gurney's Seed & Nursery Co.
110 Capital Street
Yankton, SD 57079

Blueberry muffins

Step 1

1 cup whole wheat flour
1 cup unbleached flour
4 teaspoons baking powder
1/2 teaspoon nutmeg
1/2 teaspoon cinnamon

Mix together and set aside.

Step 2

1 cup milk
1 beaten egg

Mix and set aside.

Step 3

1 cup sugar
1/4 cup melted butter or oleo
1 teaspoon grated lemon rind
1/2 cup chopped pecans

Mix and then combine all ingredients.

Step 4

1 cup fresh or frozen blueberries
(If frozen, thaw before using.)

Gently stir blueberries into combined mixture. Too much stirring will crush blueberries, so mix only until

berries are distributed throughout the mixture.

Fill greased muffin tins 2/3 full and bake at 375° F for 20-25 minutes. Makes 18 muffins. Δ

A BHM Writer's Profile:

Mary Kenyon

Mary Kenyon, her husband David, and their children live and learn in the country near Petersburg, Iowa. Mary is the homeschooling mother of six children as well as a freelance writer and author of *Homeschooling From Scratch* (Gazelle, 1995). The Kenyon family owns a home-based business selling quality used books through the mail. For a list of books the Kenyon's sell, send \$2.00 to: Once Upon a Time Family Books, P. O. Box 296, Manchester, Iowa 52097.



A BHM Writer's Profile:

Robert Bumpus

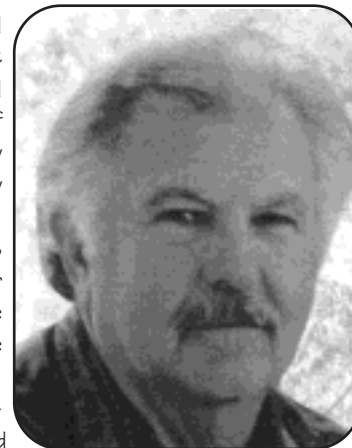
Nebraskan by birth, Bumpus has lived most of his 70 years in California, but since 1990 he has lived in Oregon. He and his wife bought 3.5 acres just off Highway 101 near a game park. Heavily timbered and overgrown with brush, they have been clearing it ever since.

They raise most of their own meat plus garden and orchard stuff. Drilled their own well, built outbuildings, etc. His wife says they are too old to pioneer but he says he's having a ball.

Married since 1948, they have nine children and a host of grandchildren and great-grandchildren.

Bumpus has been a fruit worker, a cowboy, a gold miner and gold dredger, he has worked in security for an aerospace corporation, worked for the Yuba City, California, police department, been an auto and truck mechanic, and has spent time working in the big California timber. He presently does odd jobs for widow ladies and is co-pastor of a small nondenominational church. He says he is anti-abortion, anti-tree hugger, and a Republican with strong Libertarian leanings, and he hates the way Oregon is being liberalized by former Californians.

Bumpus also belongs to a writers group in Coos Bay, Oregon, and writes short stories and poetry.



The duck dilemma: they're a lot of fun, and they *do* eat those slugs — *but . . .*

By Inez Castor

It all started innocently enough. All we wanted to do was keep the slugs from eating everything we planted. Here in the Pacific northwest, slugs can destroy an entire planting of seedlings in a single night. Since my husband and I are organic market gardeners, our options are limited; most of the things that kill slugs are on the "prohibited" list.

For a while, we hand-picked the slimy creatures at dawn and dropped them into a bucket of water and yeast, but it became apparent that I could spend every morning of my life at this Sisyphean task and still not harvest produce fit to sell. Crushed oyster shells helped a little, and so did agricultural lime. Strips of plastic permeated with salt worked well, but they were much too expensive for people trying to earn a living on one acre of land.

It was at this point, early in March and well into the slug season, that our friend Donna offered us what appeared to be a perfect (and inexpensive) solution. All we needed was a few ducks, and she had eggs due to hatch in a few days. Of course, they wouldn't be much help in the first few months, but by the time the rainy season started again, they would virtually eliminate our slug problem.

At first we were hesitant, knowing nothing about ducks except that they flew over us twice a year. Donna voiced the prevailing attitude, one that we were to encounter time and again: "Ducks take care of themselves; you don't have to do anything but throw them a little feed now and again." Right.

Finally, convinced that we were being unduly pessimistic and suspicious, I brought the first four ducklings home the day after they were hatched. At the last minute, Donna told me that they'd need to stay in the house until they exchanged their soft baby down for real feathers, but I didn't pay much attention.

Busy falling in love

I was busy falling in love with a tiny being whose bill was the size of my pinky fingernail, and whose webbed feet were so delicate that every blood vessel showed. It all seemed quite simple; they could live in a box in my office. So I carefully packed them home in a bucket to show David, already feeling protective and maternal. David, ever the practical soul, wanted to know what I intended to do with them now.

"Why, they're going to solve our slug problem," I stated confidently.

"Sure they are, but I meant what are you going to do with them *right now*. We have *slugs* bigger than they are."

"Don't worry about a thing. Just bring in that old box the chipper came in, and put it in my office. I bought starter mash for them at the feed store. It's kind of expensive, but they'll grow into the regular food soon."

Did I mention that I tend to get rabidly enthusiastic about everything I start?

We lined the chipper box with an old plastic tablecloth and put thick pads of newspaper in the bottom. Since baby ducks love water but tend to drown if it's more than two inches deep, we gave them a cake pan full of water. We put food in a cereal bowl and rigged a trouble light for warmth.

We released our fluffy yellow babies into their palatial new home and stood back to watch. They fluttered frantically the length of the pool, through the food dish, and back through the water, peeping and pooping all the



way. Within minutes it was apparent that we'd have to change their food, water and papers several times a day. At the end of the first week we were out of newspapers, we'd gone through five dollars worth of food, and the entire house reeked of duck.

But they were delightful; there was none of the mindless pecking at each other that chickens are known for. They simply made more mess than anything that size should be capable of.

At the end of two weeks, we began putting them outside for most of the day. We bought a hundred-foot roll of two-foot poultry wire to make them a playpen, justifying the expense by telling each other that the rest of the roll was bound to come in handy for something. Now we only had to change their box once a day, and preparations began for their move to the great outdoors. We began hand-feeding them small slugs, which they seemed to consider a rare delicacy.

We dismantled the old pumphouse that wouldn't fit the new pump, and turned it into an A-frame. The idea was to tuck them in at night and cover the front with poultry wire.

At two months, the ducks moved into the garden on a permanent basis, free to forage during the day, bedded down in their A-frame at night. What a relief! No more catching them and schlepping them into the house every evening. No more need to leave the doors and windows open day and night in order to breathe. We had nearly \$100 invested in food, wire, and incidentals, and the only slugs they'd eaten had been served to them on a cabbage leaf, but things were looking up.

We slid almost imperceptibly from spring into a peaceful summer, and it looked as if everything was working out just fine. The ducks followed us around the garden waiting for us to turn up goodies, and they actually ate slugs—lots of slugs. It's amazing how far a slug can stretch with a duck on either end.

We began giving them cracked corn at half the price of starter mash. Of course, they seemed to waste a lot of it, and we were feeding every sparrow and squirrel in northern California, but that was all right. They were definitely going to take care of the slug problem.

The pleasure of watching them work

All the initial expense was worth the pleasure of watching them work a carrot bed, bills buried in the soil, tails up and twitching, chuckling self-importantly deep in their throats. It was a sight guaranteed to bring a gardener's blood pressure down.

As the ducks gained confidence, strength, and weight, a new problem surfaced. Ducks have large, flat feet, suitable for trampling seedlings. It didn't help that our ducks were Pekins, the largest and heaviest type. What's more, wherever we'd been disturbing the soil (as we tend to do when planting seedlings) was where the ducks wanted to be. Have you ever tried shooing ducks out of a raised bed that's thirty feet long and four feet wide? They panic, flap, squawk, then run the length of the bed—several times. I began to detect a malicious gleam in their eyes as they danced among the seedlings.

They also wanted to come in the back door. They hung around the porch like teenagers on a street corner. I have an aversion to wasting all that fine fertilizer by tracking it into the kitchen, so we ran a strip of wire the width of the property between the garden and the house.

We bought four more rolls of wire to surround various areas of the garden that we wanted free of ducks. Wide beds, indeed, entire sections of the garden were fenced off with lopsided lengths of poultry wire supported by bamboo stakes. Now we were gardening in a maze, having to step over at least two fences in order to get anywhere. There were occasional accidents, but the system worked quite

well as long as we paid close attention to where we were walking. It was the work of only a few minutes to move a length of wire from one spot in the garden to another.

One day I watched David, a heavily laden bucket in either hand, march down the path, suddenly step high and swing the buckets over a bit of empty air, then continue on his way. He hadn't noticed that I'd moved the wire.

In mid-summer, the job of putting the ducks to bed became an exercise in frustration. There's a limit to how long I'm willing to chase ducks, and I reached that limit in early August. They simply didn't want to go to bed on warm summer nights, and I really couldn't blame them a bit. They were now too large to tempt hawks and owls, and I figured that if we couldn't catch them, neither could anything else.

An intruder strikes

This pleasant interlude came to an abrupt end one morning when our two females were found dead. We suspected weasel, because the villain had simply opened the throats and sucked them dry.

We buried the girls and began construction on a pest-proof pen up near the house for the drakes, who were suddenly willing, even eager, to be put to bed in the evening. The new pen required a roll of six-foot wire and ten posts at \$3 each.

Our drakes were lonely, and Donna happened to have more ducks than she needed, so she gave us a gray pair of uncertain lineage and Stella, a mallard with the raucous voice of a middle-aged barfly.

A week later, the gray female was dead, the pitiful little corpse left beside the "pest-proof" pen. It was at about this time that I began losing all sense of perspective.

I dug a trench and buried the bottom six inches of the fence. I used a complex series of bungee cords and wires to secure the gate. I left the bedroom

window open at night so I could hear the ducks should they be disturbed. And I began jumping up to run out naked at every night sound. (You can get away with that sort of thing in the country.)

The dog was as crazy as I was, and together we ran howling into the night several times a week. It didn't save James, who never made a sound while becoming dead.

It did, however, save Fella, the remaining Pekin. One night dog and I ran shrieking from the house, only to see a raccoon struggling to drag Fella through a hole he'd excavated near the gate. I snatched Fella by one leg, and the raccoon was gone. There I stood with a horribly injured duck and an inability to "finish the job."

Though the feathers never grew back on his head and neck, and he held his head cocked strangely, Fella survived. We put the food dish on an old wheel to get it up where he could reach it without straining his damaged neck muscles.

Donna came through for us again, donating Lady, a Pekin female, to keep Fella and the rowdy Stella company. By this time the pen was more impregnable than the local maximum security prison, but that's another story. We began to relax, and I slept through the night again.

Then we came home from town one day to find that a pair of stray dogs had killed all three ducks. David began digging the inevitable hole while I, blubbering, gathered up our little friends.

I moped for a week. The garden was too still, too predictable. Besides, it would soon be slug season again, and we had several hundred dollars invested in this "final solution" to the slug problem.

The simple truth is, I enjoy ducks. It's not possible to watch them waddle down a path without smiling. A freshly filled wading pool will bring on a veritable circus of diving, flapping, darting, and preening; it's a show I'd pay to see. There is no meanness in

A BHM Writer's Profile: Terrie Clark

Terrie Clark is an account executive at commercial printing firm in Manhattan, Kansas. It was through her work there that she became acquainted with and wrote about John and Geri McPherson and their primitive life-skills lifestyle.



A graduate of the University of Kansas with a degree in Environmental Studies, Clark has appreciated calling Kansas home. After residing several years in rural Doniphan County, she and her two daughters currently live on the outskirts of Manhattan, which lies in the heart of the Flint Hills and Tall Grass Prairie region of central Kansas.

Before moving to Manhattan in 1992, Ms. Clark worked in livestock publications both as an advertising executive and as a writer. Her special interests include environmental issues, individual's rights, equality, and self-sufficiency. She especially enjoys meeting and writing about people who live their passion, like the McPhersons.

them. When Fella was injured and couldn't keep up, they stayed near him as if in moral support.

I'm hooked on ducks!

So we looked at our dwindling bank account and began discussing the idea of fencing the entire place. While we stood in the front yard arguing passionately, me for a fence and David for a woodshed, a strange mongrel ran around the corner of the house with the cat food dish in his mouth.

We invested over seven hundred dollars and a month's labor in fencing.

We bought three grown mallards, and they've brought the garden back to life. We watch them patrol their territory during the day, tuck them in at night, and harvest slime-free produce. In a pen in the greenhouse, safe and warm under lights, are four Swedish Blue ducklings, warming up in the bullpen, so to speak. We sure do enjoy our ducks.

But don't let anyone tell you that ducks are a cheap solution to the slug problem. Δ

A BHM Writer's Profile: Carolyn Beck

Carolyn A. Beck has written since high school and is a graduate of the Institute of Children's Literature. She has been married 36 years and has three sons plus one grandson.



She has become a Certified Oregon State University Master Gardener where she has had the opportunity to write several publications for the Extension Service which were produced for public use.

She has also researched people who had lived in Oregon after surviving the civil war to assist a professor at the University of Maine with a college level Civil War, The Blue and The Gray.

The article she wrote for BHM, "Orphaned Kittens Need Special Care," was inspired after finding a dead mother cat on the road. Later, she heard the kittens crying, and took them home. Not knowing the first thing about how to care for motherless kittens, she started researching. Since then has helped several other batches of motherless kittens to survive.

Scrap poly pipe can be transformed into “training wheels for trees”

By L.A. Wallin

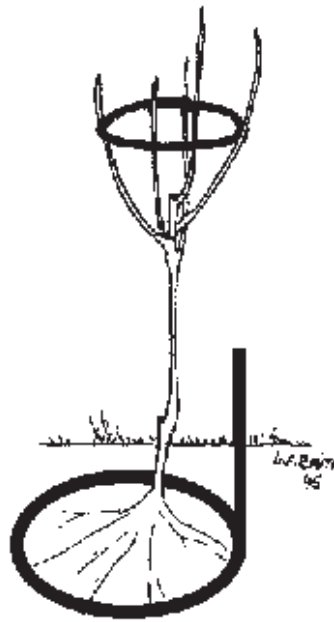
Along about the time of year that northern gardens and fields are covered with deep snow, orchard and seed catalogs begin clogging mailboxes. It seems like everybody and their cousin is offering special offers on new varieties . . . a sure sign that spring is not too many months away.

In our area, the giant chain stores have a contest with each other to be the first to set up nursery departments in early April. Truckloads of young fruit and shade trees arrive each week, both bareroot and container-grown.

During the past 15 years, we’ve purchased and planted about 100 fruit trees. We bought some at full price, early in the planting season. The rest we bought at a discount, just before greenhouses were stored for the summer. Like lost kittens and puppies, they just seemed to find their way to our homestead. With extra care, most of these trees have survived, and we are well on our way to food self-sufficiency.

Some of the trees had been trimmed and properly shaped by the growers who raised them, but the limbs on a few of them looked as if they had been enclosed in small-diameter tubes. They were growing almost straight up, not spreading a bit. Left alone, they would have been certain to produce hard-to-pick crops. They needed helping hands.

We tried various methods of holding the supple limbs for a few months, while they acquired a new direction in life. We notched short lengths of wood lath, and tried to keep the sticks braced between the boughs. That’s a difficult task in our windy area.



The newly-planted tree in this diagram is benefitting from both the limb rack and the irrigation ring.

Then a new wrinkle on the ancient Hula Hoop theme flashed through our minds. We had a pile of scrap pieces of black poly water pipe, in various diameters and lengths. They were left over from building our own home, and from scavenger tours . . . orphans just looking for something to do.

Limb racks

For our “limb racks,” we carefully curled 54" long sections of $\frac{3}{4}$ " diameter poly pipe into circles. We joined the ends of each loop by pushing them onto a round, 4" long hardwood stick. Then we slowly heated the pipe with a small propane torch to heat-shrink it onto the connector.

Next, we placed the units in the center of the limbs which needed to be spread, one to each tree, carefully pulling and pushing them into position. With one of us holding limbs and pipe, the other tied branches to the poly with used baler twine. Care was taken not to girdle the thin bark of the boughs.

We left the new hoops in place for a few months. In late autumn, they were removed. The limbs remained where we wanted them, for better open space in the center of the new fruit trees. The poly pipe rings, little affected by ultraviolet sun rays, were stored for use in future years.

And that’s not the only use we found for that scrap pipe.

Underground irrigation rings

For several years, we have made circular irrigation rings of poly pipe, which are buried about a foot deep in the soil around new trees. Surrounding the newly planted trees, they allow water to seep down to the root zone, without encouraging unwanted, nutrient-robbing weed and grass growth near the surface of our orchard. This brings on better root growth, as they spread in a wider range than with simply irrigating near the main stems. With the loops, we can slowly inject diluted liquid organic fertilizers and reduce concern about burning tender subsurface growth.

Our irrigation loops are about 6½ feet in diameter. We usually use the larger sizes of poly pipe for these. The ends of each loop are pushed onto opposing male ends of poly pipe tees. The loop is laid on a flat, horizontal surface. The third male end of the tee is aligned so that it rises vertically. A

separate piece of poly pipe, about three feet long, is slid over this end. Then, as with the limb racks, we slowly heat the pipe with a small propane torch to bond it onto the connector. Next we turn the circle over and use a 1/4 inch drill bit to bore a string of holes into what will become the lower edge of the loop. We make the holes about an inch apart.

When planting a new tree, we dig a seven-foot-diameter hole in the ground, about three feet deep. The tree is placed in the hole, and the cavity is backfilled around the roots with a mixture of soil, a small amount of fine gravel, and well-composted manure.

One of the poly loops is installed around each tree on a gravel bed, much like a sewer drain field. We place each wheel about a foot below the orchard surface, using a bubble level to get it as flat as possible. The vertical standpipe rises about two feet above ground, and serves as an inlet for a nozzle made of a piece of copper tubing attached to a garden hose.

The rest of the new tree hole is filled with the soil mixture, tamped lightly to remove air pockets, and topped with moisture-conserving mulch of old sawdust and shavings. When we irrigate our trees, we adjust the faucet so that only a medium stream of water enters the standpipe. Since the buried loop has many perforations to spread the water, there is little risk of eroding the soil which surrounds each tree. Buried that far from the surface, the loop allows us to safely rototill the ground around the trees. It has worked well for us.

Both above and below ground, we're proud of our "training wheels for trees."

L.A. Wallin and her husband live in an earth-bermed, rock-and-turf-roofed, solar-electric-powered house. They lived in a tent for three years while building their house. Country hard-scrabble raised, during the past 15 years they have developed many alternative methods of surviving tough times.
Δ

Lilacs can provide a reliable "thermometer" for planting

By L. Gordon Stetser Jr.

Because the dates of killing frosts can vary by as much as two weeks within a mile,

you're taking a chance if you depend on gardening books, seed packets, or weather forecasters when you schedule your planting.

According to Dr. L. P. Perry of the University of Vermont, "It's safer to use your own garden to determine your planting schedule." The Persian lilac is a most reliable thermome-

ter: when the leaves unfurl, it's time to plant root crops and lettuce; when the flowers bloom, put in tender plants like melon, corn and tomatoes.

If you don't have a lilac bush, take a look around your yard this spring. Are the daffodils blossoming when you put in lettuce, for example? Then if all goes well with the harvest, use your daffodils as a

when-to-plant indicator next year.

Δ



Wind Over the Fields

Even here in the city, when everything quiets enough in three a.m., there is a moment of hesitation, a stuttering of sorts, and the wind comes.

Gentle at first, like someone giving gas to a new car and then with force

"Let's see what she can do."

It runs through streets and loiters dangerously on front porches, opening and slamming screen doors, moving quickly over rooftop shingles and concrete telephone lines, whispering

"There were fields here once."

**Ben Sizemore
Hamilton, OH**

When you're laying out your farm, careful planning pays big dividends

By Jan Palmer

Planning the layout of your farm can make the difference between an enjoyable enterprise and an unsuccessful financial drain.

Hopefully, you'll have time to become totally familiar with your land in all kinds of weather and seasons. Only time will tell what your land is capable of handling. Here in northeast Oklahoma, the challenges are different from those faced by someone in western Washington or northern New York. Yet there are many similar problems, and homesteaders can learn from each other, no matter where they live.

Before buying materials, we sat down with pen and paper and listed enterprises we wanted to get into or try. Some of them can share a space (such as a couple of jenny donkeys and sheep), while others should be kept separate (such as pigs and horses—rooting by pigs could cause injuries to horses if they stepped in a hole). We found that many enterprises we would undertake would involve small numbers of the particular animal. For example, we plan to raise a few pigs for our own use, but our needs will be much different from those of a commercial hog ranch.

In arranging your homestead, if you're lucky enough to be able to start from scratch and put buildings, fields, etc., where you want them, you have more options than the person who gets an existing spread.

How close to the house?

The more time you spend with a particular enterprise, the closer you'll want it to be to the house. For example, for milking goats, you'll either

want to run water and power to the milking area *or* set up an area near the house with just light and basic power, allowing you to carry the milk in and wash pails and such in the house. The pig enterprise, on the other hand, should be some distance *away* from the house, and keeping the pigs in a sanitary manner will help reduce many of the problems associated with keeping hogs.

We set our chicken house and yard about 25 feet from the house for ease of caring for the birds, ease of carrying water (no water run to the yard yet), and as extra security against predators.

Shelter for the animals

Some enterprises can be done without a barn, but shelter should be provided for all types of stock. Outdoor rabbit hutches are popular on homesteads, and offer housing that can be moved from time to time if need be. Pigs can get along fine with a three-sided shelter, as can sheep, although if you have babies on the way in colder climates, be sure it is warm enough in the shelter to keep them from freezing.

What's normal?

Find out what is normal for your area. For example, most planning books we've ever seen suggest three-sided sheds to be facing south for maximum sun. In our area, however, some of the coldest winds come from the south, and seldom from the east, so our sheds will be facing east instead of south. We aren't alone in that decision: a red angus ranch near here also has all their shelters open on the east side. We put up temporary structures facing south, and they were

whipped to shreds by the south winds, so take heed. Your area might have stronger east winds or west winds, but no book or article can take the place of the advice of the local farmers and/or extension office. Planning ahead now can save you dollars later—as well as the frustration of doing all the work over again.

If you have an area that is naturally low-lying, you might consider putting in a pond. This could serve as live-stock water and almost always increases the value and looks of your property. Be advised, though that if you hire it done it will be expensive (\$3,000-4,000 in our area). If you haven't bought acreage yet and want a pond, you might want to consider buying land with a pond already on it.

Planning the garden

If you plan on putting in a garden, as many homesteaders do, you will probably want to locate it within a reasonable distance from the kitchen, to help make harvesting easier. An alternative, which will cost more money, is to have a small "second kitchen" out by the garden with running water and basic harvesting supplies (canning or freezing). With that setup, you can take the waste (corn shucks, leaves, etc.) straight out to the stock and the produce into the house to the pantry or freezer.

One of the best investments you can make in starting your operation is getting a soil test, usually available from the county extension service. In some areas, they're free; in our area it costs \$8. It can tell you the true condition of your soil and what you need to add, if anything.

Make note of soil conditions: the spot where you want to put the garden

might not be ideally suited for growing. Our planned garden area was *wet*, and when it did dry it was like concrete. What little did grow didn't develop as it should have. (We *didn't* start by getting a soil test.) We solved part of the problem by raising the growing area up, using raised beds in tires, which we got free for the hauling from a local tire dealer. The disadvantage to this is that it means hand tilling, because it's not possible to get a tiller down inside the tires. An alternative might be to ring the garden area with old tires, then raise the entire area if you have the fill to do it.

Make use of fertilizer from your livestock and put it on the garden to help enrich the soil. Many people suggest using geese for weeders and chickens to go after the bugs. It's been our experience that geese would rather eat the lettuce than the weeds growing next to them, but the chickens do a good job at keeping the bug population down. They do scratch, however, and might redistribute newly planted seeds, so you'd best keep them out of the garden area until plants are well established. This also keeps them from eating your corn seeds and other treats.

Be sure to check restrictions on your property. For example, you may not be permitted to locate any buildings within so many feet of a property line. Plan the layout with consideration for the neighbors, to help keep peace in the neighborhood. Of course, some neighbors are easier to get along with than others. Some don't mind the "country air" as much as the noise, which can be pretty loud at feeding time. Install fences that keep your stock where they should be. The first time your goat gets into the neighbor's flower bed could cause the last peaceful communication with the neighbor.

Consider a compact setup to allow as much room as possible for grazing. It might not be a bad thing to carry water 150 feet to the goats in the summer, but when it's below freezing and you're already cold, you might be

tempted to give them less than they need.

Old homesteads in the Northeast had connected buildings, so that in severe weather there was no need to go outside at all. This offers some unusual solutions, but also creates some problems. The biggest is the risk of fire, particularly if hay is stored in the barn. A fire in the barn could quickly spread to the house, or vice versa. Another issue is the increased chance of pests (such as flies or mice) coming into the house. Planning ahead and talking to people who have had such structures is the best way to find out the disadvantages so you can work on eliminating the problems if you like this type of structure. Another possibility is to have an attached area for small stock, with the larger stock in another barn away from the house.

Idea books

There are many books available to give you different ideas and perspectives for planning your homestead. Here are some of them:

Big House, Little House, Back House, Barn, by Thomas C. Hubka, \$21.45. The history and cultural significance of the connected farm building tradition of New England. Small Farmer's Book Service, P.O. Box 2805, Eugene, OR 97402

Horse Barns Big and Small, by Nancy W. Abrosiano and Mary F. Harcourt. Horse barn designs and considerations; could be adapted to other barns or combination barns. Breakthrough Publications, 310 North Highland Ave., Ossining, NY 10562

The "Have More" Plan, by Ed and Carolyn Robinson, \$7. Enterprise and planning for the homestead for self sufficiency. Good ideas for sun porches for turkeys, small hog setup, and more. Lots of good information. Prices are different now from when it was written, but the information is just as good. Storey's Books for Country

Living, Dept 60, P.O. Box 38, Pownal, VT 05261-9989

Building Small Barns, Sheds & Shelters, by Monte Burch, \$11.65. Planning barns, shelters, sheds. Storey's Books, address above.

Fences for Pature & Garden, by Gail Damerow, \$14.95. Choosing, planning, and building fences. Storey's Books, address above.

Buildings for Small Acreages, by James S. Boyd, \$22.60. This is 289 pages of plans with materials lists for farm, ranch, and recreation structures. Storey Books, address above.

These books are just a start, and some might be at your local library or book store.

May your homestead be productive and a joy to your family. Plan now for lasting success. Δ

A BHM Writer's Profile: Steve Anderson



Steve Anderson is 46-years-old and has been married 27 years (to the same person the whole time). For the last 21 years he has lived, gardened, worked, and raised four kids in the small central Maine town of Charleston. For 10 years he and his wife owned their own business, a retail food/restaurant, but for the last four years he has spent most of his time as a freelance writer and outdoor photographer.

Follow these eight easy steps to a successful eggplant harvest

By Michael Clayton

The following methods can be used with a variety of crops. The information is very detailed for the first time gardener, but it contains a specific method which may be of interest to the seasoned gardener.

Step one. Selecting the variety is fairly simple with eggplants. You choose either purple or yellow (the yellow eggplant's fruit is green when harvested), long and thin or egg shaped, depending on personal choice, and a long or short season variety depending upon the length of the growing season in your area. If you are going to save the seed, do not choose a hybrid variety.

Step two. To prepare the soil for indoor planting, mix four parts topsoil with one part cow manure and add some peat moss. Make sure that the cow manure is well decomposed. Mix the soil and other ingredients well and put into containers.

Step three. To plant the seed, about six weeks before time to transplant (you transplant when the weather is warm and all danger of frost has passed), take the seeds out of their container and get the containers with the prepared soil. Take a pencil or your finger and make a hole $2\frac{1}{2}$ times deeper than the seed's length. Put three or four holes per container. Place a seed or two in each hole. Cover and pat down gently, then water. To speed germination time, place in a sealed plastic bag. Check every few days for germination.



Step four. When the seeds come up, remove them from the plastic bag and place them in a warm, sunny location. Water as needed. Warning: Do not over-water or the plant stems may rot. In about four weeks, thin to the strongest plant in each container.

Step five. When the weather outside is warm and all chance of frost has passed, pick a sunny location, clear it of trash and cut the weeds, then dig up the area, removing the remaining weed parts. The digging can be accomplished either by tilling or by digging with a shovel. Make sure that all large clods are broken up. Take a garden rake and rake the area level, removing any remaining trash.

Step six. To transplant the eggplants, dig a hole two feet by two feet and about two feet deep, or you can dig a trench if you want. Place in the hole two shovels of cow manure, two shovels of compost, one shovel of wood ashes, and a handful of lime. Place the soil back into the hole and dig in the ingredients until you can no longer see the added components in the soil, then rake it level. If planting directly outdoors, see step three.

With a trowel, dig a small hole slightly larger than the soil ball (the soil in the planting container). Fill the hole with water and let it soak in. Water the eggplant in the container and then remove it. Place it in the hole and cover slightly above the soil ball.

If you goof and a cold snap is coming, take a clear two- or three-liter plastic cola bottle and wash it out. Cut it so it will fit over the eggplant and remove its cap. Place the bottle over the eggplant with the edge of the bottle cutting slightly into the ground.

Step seven. Harvest the eggplant fruit when they are the size that you desire but have not yet changed color. If purple ones have brown stripes, or if yellow ones are turning yellow, they are no good.

Step eight. To gather seed, wait until the eggplant fruit have changed color. If you are not sure, just let them fall off the vine: then they are ready. Cut the eggplant fruit lengthwise into four equal parts and remove the seed. Place the seed on a pan or paper. (The seeds will probably stick to whatever you dry them on, so keep that in mind when choosing the surface.) Do not dry the seed in the oven, because the heat will kill it. After about a month of drying, place the seed in a sealed container, such as an envelope. Note: When you let the fruit mature, the productive energy of the plant will go down, so you need to use only one or two plants for seed production. Do not save the seed of a hybrid. Δ

Tobacco has some uses that might surprise you

By Rev. J.D. Hooker

Before I actually get started here, I'd like to say something: I really hope that no one takes this article as my encouraging anyone to take up tobacco use. If you don't already use it, you'd be so much better off never even to try it that you'd be absolutely stupid to start.

However, I'm sure that many readers of this magazine are already regular tobacco users, and tobacco has some other, very good uses. So I'd like to pass along some of what I've learned about growing it and using it on the homestead.

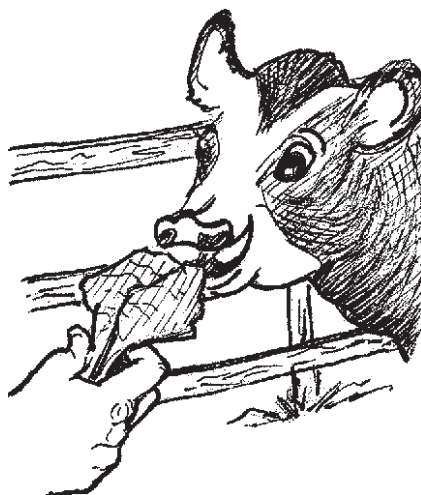
While anyone who tried telling you that homegrown tobacco was *good* for you would be a liar, I honestly think that it might be less unhealthy than the commercial product. If you watched any of the televised documentaries about the tobacco industry, or read any of the stuff all over last year's newspapers, I'm sure you're well aware of the tremendous number of additives put into cigarette tobacco. Some of them are sufficiently poisonous to be illegal as food additives. I'd say we can safely assume that cigars, pipe tobacco, snuff, etc., are just as "chemically enhanced."

I can definitely tell you that homegrown tobacco is much healthier for your wallet than any similar commercial product. For less than the cost of a single pack of cigarettes or pipe tobacco, you can purchase a packet of seeds and grow a whole year's worth of tobacco.

Even folks who'll never consume any form of tobacco might want to consider putting in a row or two of this versatile plant. It has some pretty valuable uses, aside from human consumption, and it's even an attractive ornamental.

It's a wormer...

Long before I'd ever considered trying to grow my own, I'd heard many older farmers recommending tobacco as being highly superior to any commercial wormer for every sort of livestock. In fact, the US Army Special Forces Medical Handbook recommends tobacco for human use as an antihelminthic (worm expeller) if standard medicines aren't available.



For myself and other folks I've talked to who've tried this, feeding a couple of large leaves (or an equivalent amount of shredded stems) each month to each hog, goat, cow, pony, or whatever really does seem to eliminate any problem with internal parasites.

With severe infestations, this sometimes needs to be repeated every few days for a while. Still, this treatment seems much less severe, with fewer debilitating effects, than commercial wormers. As a preventive medicine, a couple of large leaves every month or so not only works great, but the animals act like it's a terrific treat. Goats, cows, and such seem to have a strong liking for tobacco. (Cats and dogs and other carnivores don't seem to agree.)

Serious overdosing seems close to impossible using tobacco as a wormer. About the worst I've ever seen happen has been an occasional bout of temporary diarrhea.

...it's a pesticide...

Brewed into a strong tea-like solution and poured or sprayed on and around garden crops, fruit trees, rose and berry bushes, etc, tobacco is also about the best herbal pesticide there is. If you have any sort of insect problem, your own homegrown tobacco can offer as good a solution as any expensive commercial product. (If you consume your tobacco leaves, I've found the woody stems and stalks just as effective for this.)

Recipe: Add two ounces of dry (or three ounces of fresh) tobacco to a gallon of boiling water. Remove from heat and allow to steep several hours, or overnight. Strain, pour into containers, and cover. Spray or mist plants lightly as needed.

...and it's a bug bomb

Here's another thought to consider when deliberating whether to put in your own tobacco crop. Many years ago, lots of Native Americans would toss a handful of tobacco atop a pile of glowing coals. Burning like incense, the tobacco smoke would permeate their dwelling. In their belief, this helped drive out any "evil spirits" that might be present. Given the insecticidal, germicidal, and other properties modern science has shown to be present in tobacco smoke, they were absolutely right (if you consider germs, bacteria, and insect "vectors" as "evil spirits"). You might want to try this should the need arise; it's cheaper than disinfectant or bug bombs and just about as effective.

Grow your own

If any of this has given you an interest in growing your own crop of tobacco, there are a few preliminary steps you'll need to go through to get started.

First you need to find a source for tobacco seeds. I haven't run across very many garden catalogs that even offer tobacco seeds, while the few that do normally carry only a single variety. But here's a source where they carry quite a few tobacco varieties, as well as an array of other Native American type seeds:

Native Seeds/SEARCH
2509 N. Campbell Ave. #325
Tucson, AZ 85719

Write and ask for a copy of their seed listing. We plant some of each tobacco variety they carry every year. You'll most likely find some corn, vegetable, or grain varieties you'd be interested in trying in their listing while you're at it. (Their Santa Domingo Blue flour corn is something else I highly recommend.) NSS is an organization that I heartily endorse. They've preserved a considerable number of useful and valuable seed varieties that would probably have been lost to us without their efforts. (If you are of Native American descent, you'll want to check out their discounts.)

Preparing beds

Anyway, once you've obtained your seed supply, you'll need to prepare some planting beds. All tobacco varieties will cross very readily, so unless you won't mind buying more seed every year, you'll want to keep the types as widely separated as possible.

I like to get my tobacco beds ready the preceding fall. I work large quantities of manure, leaves, grass clippings or spoilt hay, compost, and wood ash thoroughly into the soil. You don't ever want to plant tobacco in the same place two years in a row, nor should you follow tomatoes, peppers, or pota-

toes with it, since the few diseases and organisms that attack tobacco plants can winter over from any of these. Because of their nitrogen-fixing abilities, any type of bean or pea makes a good crop to precede tobacco.

Start your tobacco seeds indoors, in pretty much the same manner and at the same time as you would tomatoes. The seeds are almost as fine as dust, so I use a pair of tweezers to pick up just a very few at a time for planting. Once the final frost date for your area has passed and the soil is well warmed up (about a week after you'd put out tomato plants), your tobacco seedlings are ready to be planted. Space them about three feet apart in rows four or five feet apart. Mulch very heavily, both between plants and between rows, as the young plants can't compete well with weeds.

"2nd batch" manure tea

Once a week, through the entire growing season, I feed the tobacco crop with a "second batch" of manure tea. Here's what I mean: Fill a feed sack about 1/2 full of manure and tie it shut. Place this in a 55-gallon drum, fill it with water, and allow it to steep overnight. In the morning, use this first batch to feed some other garden crop. Then, using the same manure and fresh water, steep overnight once again. This milder "second batch" seems to work wonders for tobacco. The somewhat depleted manure then gets added to the compost pile.

You'll find that flower buds start to form at the tops of the plants. The first time this occurs, select a few of your best looking plants to let flower and go to seed. Keep the buds trimmed off of all the rest, as this forces more of the plant's energies into producing more and larger leaves.

Harvest and cure

After a while, you'll notice a few leaves at a time yellowing and starting to die off. As each leaf yellows, trim it

off. Tie these leaves in bundles and hang the bundles in a dark, moist place (a root cellar works well enough) to "cure."

Wait at least a couple of months if you intend the tobacco for smoking, then shred up one of the leaves and try it out. If the flavor seems pretty good to you, your tobacco's ready to use. If it doesn't seem very good, let it mellow by curing longer. Keep sampling it occasionally until you decide it's just right for your own taste.

As the leaves cure to my liking, I shred them up and pack them into half-gallon canning jars. Adding a thick slice of apple or pear to each jar helps the tobacco stay moister and fresher. These fruit slices need to be replaced every couple of weeks. Since not all of your tobacco will finish curing at once and you'll be keeping the jar lids screwed on, you should find your homegrown supply keeping in pretty good shape for a year or more.

Stalks, stems, and whatever leaves that aren't just perfect go through our chipper/shredder for use as livestock wormer, pesticide, etc. If you're only interested in growing tobacco for these purposes, you can just put the entire plant through the shredder.

I'm not sure of all the laws regulating tobacco, but I wouldn't recommend trying to sell any of your homegrown smoking or chewing tobacco. For your own private use, though, whether you're stuffing a pipe or worming a herd of goats, I don't believe you should run into any problems, as long as you're over 18. Selling or giving away tobacco seeds to other adults is OK so far, as well.

If the present governmental assault on the tobacco industry, along with all of the deadly-sounding adulterants, the skyrocketing prices, and the Surgeon General's warnings, haven't been enough to convince you to give up tobacco altogether, why not try growing your own? If nothing else, you'll know that it's additive free and you'll save yourself quite a bit of money. Δ

Whose garden is this anyway?

By Michael J. Tougas

The sugar peas had recently flowered, and now the pods were approaching the two-inch mark. Fledgling cabbage, kale and lettuce plants were green with promise; spinach and beets were on their way. But when I rushed to my garden after a day in the city, I found only stems sticking out of the ground like so many dragons's teeth.

It had to be a woodchuck. No rabbit systematically works his way down row after row, leaving only the nub of a stem in his wake.

My first defense was to erect a fence. It cost about \$50 and took a few hours to build, but it was a small price to pay to protect my crops. And it worked, for all of two days. Then the woodchuck, also known by the fitting name of groundhog, tunneled under the chicken wire and sheared off the cabbage and kale. From there he moved on to the spinach, beets, eggplant and parsnip greens. I asked a local fanner for advice. He chuckled and said a groundhog could go over a fence as well as under one. He suggested I buy a humane, "live" trap, saying, "I guess woodchucks need to eat like the rest of us; after all, they're as much God's creatures as we are." Then he added, "If you do catch 'im, make sure you kill him; I don't want him coming over here."

I bought the trap, an expensive investment at \$60, but it worked-on a skunk. I never used it again.

My garden still held peppers, beans, squash, tomatoes and strawberries. It was a far cry from my original bounty, but worth protecting, so I escalated from defense to offense. Groundhogs make their burrows with two entrances so they have a handy escape route should a fox enter their home. It didn't take long to find an entrance.

While I examined it, the hog himself came barreling down the hill and disappeared into the second hole no more than 5 ft. away from me. I hadn't expected my adversary to act this way or to be so large. He was much bigger than my neighbor's cat, grown fat, no doubt, on lettuce, cabbage, beans and my beloved sugar peas.



Now that I'd found his base, I began my attack. I put mothballs and rags soaked in ammonia down the hole to drive him out. They didn't work. I tried sealing the hole with boulders. He pushed the small ones aside like petty worries; the big ones he dug around. And always he was eating. My well-nourished enemy grew not only larger, but bolder, too. One day I sat under our maple and looked out at the pitiful remains of my vegetable garden—decimated tomatoes, trampled strawberries and a few lonely squash. The hog emerged from the woods, sniffed the air and bounded toward the garden, stopping only when I threw a rock at him. I chased him into his hole, grabbed the biggest boulder I could find, and pushed it into the entrance. And stepped on a hornet nest.

It was psychological warfare, and the short, furry guy was winning. My mental outlook was as desolate as my garden. I thought about the chuck constantly; even at work. I envisioned him back in my garden and wondered which plant of mine he was devouring. Friends asked for a daily "groundhog report," and when I got home in the evening, I greeted my wife with

the same terse question: "Did you see him?" By now my garden looked like the Sahara, and I'd been pushed to my limit. I didn't care anymore about a kinder, gentler garden with a picturesque fence separating his territory from mine in a microcosm of peaceful coexistence. I didn't care anymore about humane trapping. I didn't even care to drive him out of his happy home with ammonia and mothballs. This was war, and I was taking no prisoners. I wanted him, and I wanted him dead.

Shooting the critter was out of the question since I lived in a suburban setting, but I had another weapon in my arsenal—bombs. Yes, bombs. My local farm and garden store carried rodent smoke bombs complete with fuses and detailed instructions. The trick was to drop the bomb into the hole and then cover the opening with dirt so the noxious fumes would asphyxiate the groundhog. But I forgot to seal the exit hole, and the fumes escaped. On my second try, I sealed the hole but extinguished the bomb with the dirt. But the third time ... ah, sweet success. Days went by, and not a woodchuck in sight.

A week later, as I sat under my maple tree, lord of my acre once more, a movement caught my eye. And there he was, my nemesis, perched like a squirrel with lunch in his paws. He had the last laugh; right beneath the tomato plants was the entrance to yet another burrow.

Well, at least I'm in good company. Thoreau had problems with groundhogs at Walden Pond. Commenting on his bean patch, he lamented, "My enemies are worms, cool days, and most of all woodchucks. I plant in faith and they reap." Walter Harding, in his excellent biography, "The Days of Henry Thoreau," tells us that Thoreau became so exasperated with the woodchuck that, "Abandoning his not-too-strongly-held vegetarian principles, he trapped, killed and ate it as a culinary experiment."

Don't tempt me. Δ

For some surprises in your garden, grow potatoes from seed

By Craig Russell

The underground tuber of the potato plant is the modern world's most important vegetable. In the garden, potatoes are normally grown by planting small potatoes or cutting larger "seed" potatoes into sections, making sure that each section contains an "eye" or sprout, and planting these.

Despite the fact that everyone is familiar with potatoes, and many people have seen their white-, pink-, or purple-petaled flowers with yellow centers, many gardeners seem to be unaware of the small, green, tomato-like fruits these flowers can produce.

As a result, every few years another article shows up about someone's potatoes and tomatoes "crossing." While the two vegetables are related, and both are members of the nightshade family, they do not cross, or hybridize. However, the seeds from potatoes can be grown like tomatoes, often with surprising results.

Wild potatoes are found in South, Central, and North America. The majority come from the cool regions of the Andes and the west coast of South America. The domestic potatoes are certainly hybrids, and botanists have traced their closest relatives and what they believe to be the bulk of their ancestors to central and southern Chile. Wild potatoes and even domestic varieties from the Andean area are much more variable in shape and color than the typical round or oval white-fleshed domestic types common in the rest of the world.

However, these variable types have contributed to the genetic makeup of our modern potatoes, which are seldom genetically pure. Modern potatoes maintain their characteristic type only because they are reproduced veg-



etatively (as described above), not from seed. Seeds which result from pollination reshuffle the genes, and when planted can result in tubers quite different from the parent types. Other characteristics such as flower color may also vary.

If you try the methods described in this article, and one or more of the resulting plants produces potatoes you like, save some of the tubers and plant them like other "seed potatoes." In this way, you can actually start your own varieties. Besides the typical potatoes, you may get flat and wavy or even odd and grotesque tubers. Even those that aren't very practical can be fun.

Seeds from a patch of a single variety may produce considerable variation, although most will show at least some similarity to the parent type. Still, I've had several shapes and skin colors and yellow- as well as white-fleshed tubers from seed collected from a patch of typical roundish, brown-skinned, white-fleshed potatoes. The greater the diversity of the possible pollinators, the greater the possible variation of the offspring. With seeds collected from a patch containing brown-, red-, whitish, and blue-skinned potatoes of several shapes, and with blue- and yellow-fleshed as well as white-fleshed tubers, the variation has been astonishing. Not only were the original characteristics reshuffled, purple skins and white-fleshed potatoes with red or blue tints were added, and unusual shapes were rather common. I can't

make any promises on what you will get, but waiting to find out is part of the fun.

While some gardening books suggest pinching of the flowers or fruits of a potato plant to prevent their drawing energy away from the tubers, I've never found this to be a problem. As far as the fruits go, looking around the potato patch late in the season will probably reveal some, but many of our modern potatoes seem to have been selected for not being very prolific in terms of fruit production. Some of the plants I've grown from seed are much better in that respect, with almost every flower producing a fruit. In any case, you may be able to improve production by giving the pollinating insects a hand. Use a brush or some soft feathers to transfer pollen from one flower to another when the potatoes first bloom.

When the fruits are ripe (they stay green but become lighter colored), open them and squeeze the seeds onto a paper towel. When dry, this may be marked, wrapped, and stored until spring, or the seeds may be removed and stored in an envelope or a small plastic bottle.

Note: Do not eat the fruit. They look like tomatoes, but *like all above-surface parts of a potato plant, they are potentially toxic.*

In the spring, start the seeds in flats or peat pots like tomatoes or peppers and when well started transfer to the garden. You too can have some real "seed potatoes." Δ